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**Department of Education,
Science and Training**



PMC04 Manufactured Mineral Products Training Package

Volume 1 of 1



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PMC04 Manufactured Mineral Products Training Package

Volume 1 of 1 Manufactured Mineral Products Training Package

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PMC04 Manufactured Mineral Products Training Package

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TABLE OF CONTENTS

Preliminary Information	7
Important Note to Users.....	7
List of units in PMC04 and mapping with PMC99	17
Mapping of PMC99 to PMC04.....	17
List of units in PMC04 and mapping to PMC99.....	24
Overview	37
What is a Training Package?.....	37
Training Package Endorsed Components.....	38
Training Package, Qualification and Unit of Competency Codes.....	39
Training Package, Qualification and Unit of Competency Titles.....	40
Development of PMC04	41
PMC99.....	41
The review process.....	41
Awards, licensing and other regulatory issues.....	41
The steering committee.....	42
The industry participants.....	42
Changes resulting from the review	46
General comments.....	46
Assessment guidelines.....	46
Qualifications framework.....	46
Units of competency.....	46
Imported units.....	47
Core units in PMC04.....	47
Industry coverage	49
Manufacturing Learning Australia.....	49
The process manufacturing industry.....	49
The manufactured mineral products industry.....	50
Qualifications Framework	51
The Australian Qualifications Framework.....	51
Qualifications for this sector.....	55
Differentiation of qualifications.....	56
Distinguishing features of qualifications in the AQF.....	56
Endorsed competency standards and the AQF.....	58
Capacity for implementation of PMC04 in schools	61
Introduction.....	61
Structure of PMC04 qualifications.....	61
Conclusion.....	66
Spectrum gradations used.....	66
Note regarding frontline management	67
Packaging for a streamed qualification	68
Customisation and Contextualisation Guidelines	72
Qualifications	78
PMC10104 Certificate I in Manufactured Mineral Products.....	78
PMC20104 Certificate II in Manufactured Mineral Products.....	81
PMC20204 Certificate II in Production Support.....	87
PMC30104 Certificate III in Manufactured Mineral Products.....	92
PMC30204 Certificate III in Production Support.....	97
PMC40104 Certificate IV in Manufactured Mineral Products.....	101
PMC50104 Diploma of Manufactured Mineral Products.....	106
PMC60104 Advanced Diploma of Manufactured Mineral Products.....	111
Assessment Guidelines	116

Table of Contents

Introduction.....	116
Assessment System Overview.....	116
Australian Quality Training Framework Assessment Requirement.....	116
Pathways.....	117
Designing Assessment Tools.....	120
Use of Assessment Tools.....	120
Using Prepared Assessment Tools.....	120
Developing Assessment Tools.....	120
Conducting Assessment.....	120
Access and Equity.....	122
Futher Sources of Information.....	123
General Resources.....	123
Assessment Resources.....	123
Assessment Tool Design and Conducting Assessment.....	124
Assessor Training.....	124
Assessment System Design and Management.....	124
Competency Standards.....	125
What is Competency.....	125
Contextualisation of Units of Competency by RTOs.....	125
Components of Units of Competency.....	125
Performance Levels.....	128
Appendices.....	130
Glossary.....	130
 Units	
PMCCOR102A Clean plant and equipment.....	138
PMCOPS103B Operate equipment.....	141
PMCOPS201B Operate a unit of equipment.....	144
PMCOPS202B Operate equipment to blend/mix materials.....	149
PMCOPS203B Operate grinding equipment.....	155
PMCOPS204B Prepare for production.....	160
PMCOPS205B Process greenware/green products.....	164
PMCOPS206B Operate an autoclave.....	168
PMCOPS207A Heat accelerate the curing of precast concrete.....	172
PMCOPS208A Operate crushing equipment.....	177
PMCOPS210B Operate a Calcining kiln.....	182
PMCOPS220B Operate slip casting equipment.....	187
PMCOPS221B Operate manual glazing equipment.....	191
PMCOPS222B Prepare materials for clay and ceramic production.....	196
PMCOPS223B Finish products after firing.....	201
PMCOPS224B Hand mould products.....	206
PMCOPS230B Operate a firing kiln.....	210
PMCOPS231B Operate extrusion equipment.....	215
PMCOPS232B Operate pressing equipment.....	219
PMCOPS240B Operate melting process.....	223
PMCOPS241B Operate process ovens.....	228
PMCOPS242B Operate blown insulation equipment.....	233
PMCOPS243B Operate float forming equipment.....	238
PMCOPS244B Operate fibre forming equipment.....	243
PMCOPS245B Operate container forming equipment.....	248
PMCOPS246B Operate glass printing equipment.....	253
PMCOPS247B Operate primary annealing equipment.....	258
PMCOPS248B Operate glass finishing equipment.....	263
PMCOPS249B Operate on-line stacking and assembly equipment.....	268
PMCOPS250B Schedule, cut and bend reinforcement.....	273
PMCOPS251B Finish green concrete products.....	277
PMCOPS252B Cast moulded concrete products.....	282
PMCOPS253B Finish cured concrete products.....	287
PMCOPS254B Spin concrete pipes.....	291
PMCOPS255B Conduct benching operations.....	296
PMCOPS256A Assemble, fabricate and place reinforcement.....	300

Table of Contents

PMCOPS257A Finish casting operation.....	304
PMCOPS258A Demould concrete products.....	308
PMCOPS260B Batch mix concrete.....	312
PMCOPS261B Deliver concrete to site.....	317
PMCOPS265A Prepare asphalt.....	321
PMCOPS270A Operate forming equipment.....	326
PMCOPS271A Operate wet and dry end equipment.....	331
PMCOPS272A Produce fibrous plasterboard.....	336
PMCOPS290A Use and maintain tools and equipment for refractory operations.....	341
PMCOPS291A Prepare for, install and repair refractory brickwork/blockwork.....	344
PMCOPS292A Prepare for and install mouldable refractory materials.....	348
PMCOPS293A Prepare for and cast refractory materials.....	351
PMCOPS294A Prepare for and apply shotcrete for installation.....	354
PMCOPS295A Prepare for, install and repair ceramic fibre.....	357
PMCOPS300B Set up and tune a process.....	360
PMCOPS301B Operate centralised process control systems.....	365
PMCOPS310B Process raw meal into product.....	369
PMCOPS320B Prepare moulds and dies.....	374
PMCOPS321B Set up and tune glazing equipment.....	379
PMCOPS340B Set up and optimise glass forming process.....	384
PMCOPS341B Set up and optimise glass furnace process.....	390
PMCOPS342B Set up and optimise secondary process.....	396
PMCOPS350B Produce architectural precast concrete.....	401
PMCOPS351A Produce structural precast concrete.....	405
PMCOPS370A Design and construct moulds for fibrous plaster products.....	410
PMCOPS372A Model fibrous plaster products.....	415
PMCOPS380A Set up and optimise finishing process.....	418
PMCOPS390A Test refractory materials.....	424
PMCOPS400B Optimise process systems.....	427
PMCOPS420C Design and prepare models, moulds and dies.....	434
PMCOPS490A Undertake simple refractory design.....	440
PMCOPS491A Analyse refractory failures.....	442
PMCOPS530B Analyse equipment performance.....	445
PMCOPS531A Choose materials for an application.....	449
PMCOPS630B Develop a new product.....	453
PMCOPS631B Design structural/mechanical components.....	459
PMCSUP170B Shift materials safely.....	464
PMCSUP171B Pack finished products.....	468
PMCSUP172B Store materials for production.....	472
PMCSUP180A Organise self.....	476
PMCSUP181A Work in a team.....	479
PMCSUP270A Move materials.....	482
PMCSUP271B Operate bulk materials handling equipment.....	487
PMCSUP272A Identify and act upon hazards in the workplace.....	492
PMCSUP273A Receive and despatch materials.....	501
PMCSUP274B Undertake minor maintenance.....	505
PMCSUP275A Maintain kiln refractory.....	509
PMCSUP280A Manage conflict at work.....	513
PMCSUP281A Deliver customer service.....	517
PMCSUP282A Use computers and related programs in the workplace.....	521
PMCSUP283B Allocate and complete team tasks.....	525
PMCSUP292A Sample and test materials and product.....	529
PMCSUP380B Oversee team performance.....	533
PMCSUP381B Carry out stock control.....	537
PMCSUP382A Provide coaching/mentoring in the workplace.....	541
PMCSUP391A Collect and prepare standard samples.....	546
PMCSUP392A Perform basic laboratory tests.....	551
PMCSUP393A Perform instrumental analysis.....	555
BSBCMN402A Develop work priorities.....	559
BSBCMN404A Develop teams and individuals.....	564
BSBCMN410A Coordinate implementation of customer service strategies.....	569
BSBCMN412A Promote innovation and change.....	575
BSBFLM402A Show leadership in the workplace.....	581
BSBFLM403A Manage effective workplace relationships.....	586
BSBFLM404A Lead work teams.....	592
BSBFLM405A Implement operational plan.....	598

Table of Contents

BSBFLM406A Implement workplace information system.....	603
BSBFLM409A Implement continuous improvement.....	608
BSBFLM504A Facilitate work teams.....	613
BSBFLM505A Manage operational plan.....	619
BSBFLM509A Promote continuous improvement.....	625
BSBFLM510A Facilitate and capitalise on change and innovation.....	630
BSBFLM511A Develop a workplace learning environment.....	636
BSZ401A Plan assessment.....	641
BSZ402A Conduct assessment.....	648
BSZ403A Review assessment.....	657
BSZ404A Train small groups.....	666
LMTEGNG06A Design equipment and system modifications.....	671
LMTEGNG07A Manage installation and commissioning of equipment and systems.....	676
LMTPDHL06A Manage product development projects.....	681
PMACOM300A Contribute to the development of plant documentation.....	687
PMAOHS100B Follow OHS procedures.....	690
PMAOHS110B Respond to emergency situation.....	694
PMAOHS200B Participate in workplace safety procedures.....	699
PMAOHS300B Implement and monitor OHS policies and procedures for a work group.....	705
PMAOHS400B Contribute to workplace OHS management system.....	711
PMAOHS401B Assess risk.....	717
PMAOHS503A Maintain the workplace OHS management system.....	724
PMAOHS510B Manage risk.....	730
PMAOHS601A Establish workplace OHS management system.....	736
PMAOPS101B Read dials and indicators.....	743
PMAOPS105B Select and prepare materials.....	747
PMAOPS212A Use enterprise data system.....	752
PMAOPS216A Operate local control system.....	757
PMAOPS401B Trial new process/product.....	763
PMAOPS511A Determine energy transfer loads.....	769
PMAOPS512A Determine mass transfer loads.....	772
PMAOPS520B Manage utilities.....	775
PMAOPS521B Plan plant shut down.....	779
PMAOPS600B Modify plant.....	784
PMAPER200C Work in accordance with an issued permit.....	790
PMAPER201C Monitor and control work permits.....	796
PMAPER205B Enter confined space.....	803
PMAPER300C Issue work permits.....	810
PMAPER302B Issue work permits (hot work/confined space).....	817
PMAPROC101B Make measurements.....	826
PMASUP100B Apply workplace procedures.....	829
PMASUP110A Relay and respond to information.....	833
PMASUP120A Follow environmental work practices.....	837
PMASUP130B Follow established work plan.....	841
PMASUP200B Implement production efficiencies.....	845
PMASUP210A Process and record information.....	850
PMASUP220A Monitor and control environmental hazards.....	855
PMASUP300B Identify and implement opportunities to maximise production efficiencies.....	860
PMASUP320A Implement and monitor environmental policies.....	865
PMASUP330B Schedule production.....	871
PMASUP390A Use structured problem solving tools.....	875
PMASUP420A Minimise environmental impact of process.....	881
PMASUP520A Review procedures to minimise environmental impact of process.....	886
PMASUP620A Manage environmental management system.....	892
PMBPREP508A Produce drawings.....	900
PMBPROD230B Monitor process operations.....	904
PMBTECH502B Review and analyse production trials and specify retrials.....	909
PSPPM502A Manage projects.....	913
TDTC497C Drive heavy rigid vehicle.....	917
TDTD1097B Operate a forklift.....	924

Preliminary Information

Important Note to Users

Training Packages are not static documents; they are amended periodically to reflect the latest industry practices and are version controlled. It is essential that the latest version is always used.

Check the version number before commencing training or assessment

This Training Package is Version 1 - check whether this is the latest version by going to the National Training Information Service (www.ntis.gov.au) and locating information about the Training Package. Alternatively, contact Manufacturing Industry Skills Council at <http://www.mskills.org.au> to confirm the latest version number.

Explanation of version number conventions

The primary release Training Package is Version 1. When changes are made to a Training Package, sometimes the version number is changed and sometimes it is not, depending on the extent of the change. When a Training Package is reviewed it is considered to be a new Training Package for the purposes of version control, and is Version 1. Do not confuse the version number with the Training Package's national code (which remains the same during its period of endorsement).

Version modification history

The version details of this endorsed Training Package are in the table below. The latest information is at the top of the table.

Version	Release Date	Comments
1.1	12/10/2005	<p>References to PMCOPS210B Operate a rotary kiln altered to correct title: PMCOPS210B Operate a calcining kiln.</p> <p>Codes for following 6 units have been corrected to "B" versions throughout:</p> <ul style="list-style-type: none"> • PMCOPS103B Operate equipment • PMCOPS201B Operate a unit of equipment • PMCOPS202B Operate equipment to blend/mix materials • PMCOPS203B Operate grinding equipment • PMCOPS204B Prepare for production • PMCOPS400B Optimise process operations <p>Code corrected to "A" version throughout for following unit:</p> <ul style="list-style-type: none"> • PMCOPS531A Choose materials for an application <p>Code corrected to "B" version throughout for following unit:</p> <ul style="list-style-type: none"> • PMCSUP381B Carry out stock control
1	23/01/2004	Initial Release of the fully revised Package replacing PMC99

Forms control: All endorsed training packages will have a version number displayed on the imprint page and footer of every volume constituting that training package. Every training package will display an up-to-date copy of this modification history form, to be placed immediately before the contents page of the first volume of the training package. Comments

on changes will only show sufficient detail to enable a user to identify the nature and location of the change. Changes to training packages will generally be batched at quarterly intervals. This modification history form will be included within any displayed sample of that training package and will constitute all detail available to identify changes.

Summary of AQF qualifications in this training package

Code	Title
PMC10104	Certificate I in Manufactured Mineral Products
PMC20104	Certificate II in Manufactured Mineral Products
PMC20204	Certificate II in Production Support
PMC30104	Certificate III in Manufactured Mineral Products
PMC30204	Certificate III in Production Support
PMC40104	Certificate IV in Manufactured Mineral Products
PMC50104	Diploma of Manufactured Mineral Products
PMC60104	Advanced Diploma of Manufactured Mineral Products

Units of competency in this training package and their prerequisites

Code	Title	Prerequisite
PMCCOR102A	Clean plant and equipment	None
PMCOPS103B	Operate equipment	None
PMCOPS201B	Operate a unit of equipment	None
PMCOPS202B	Operate equipment to blend/mix materials	None
PMCOPS203B	Operate grinding equipment	None
PMCOPS204B	Prepare for production	None
PMCOPS205B	Process greenware/green products	None
PMCOPS206B	Operate an autoclave	None
PMCOPS207A	Heat accelerate the curing of precast concrete	None
PMCOPS208A	Operate crushing equipment	None
PMCOPS210B	Operate a Calcining kiln	None
PMCOPS220B	Operate slip casting equipment	None
PMCOPS221B	Operate manual glazing equipment	None
PMCOPS222B	Prepare materials for clay and ceramic production	None
PMCOPS223B	Finish products after firing	None
PMCOPS224B	Hand mould products	None
PMCOPS230B	Operate a firing kiln	None
PMCOPS231B	Operate extrusion equipment	None
PMCOPS232B	Operate pressing equipment	None
PMCOPS240B	Operate melting process	None
PMCOPS241B	Operate process ovens	None
PMCOPS242B	Operate blown insulation equipment	None
PMCOPS243B	Operate float forming equipment	None
PMCOPS244B	Operate fibre forming equipment	None
PMCOPS245B	Operate container forming equipment	None
PMCOPS246B	Operate glass printing equipment	None
PMCOPS247B	Operate primary annealing equipment	None
PMCOPS248B	Operate glass finishing equipment	None

Code	Title	Prerequisite
PMCOPS249B	Operate on-line stacking and assembly equipment	None
PMCOPS250B	Schedule, cut and bend reinforcement	None
PMCOPS251B	Finish green concrete products	None
PMCOPS252B	Cast moulded concrete products	None
PMCOPS253B	Finish cured concrete products	None
PMCOPS254B	Spin concrete pipes	None
PMCOPS255B	Conduct benching operations	None
PMCOPS256A	Assemble, fabricate and place reinforcement	None
PMCOPS257A	Finish casting operation	None
PMCOPS258A	Demould concrete products	None
PMCOPS260B	Batch mix concrete	None
PMCOPS261B	Deliver concrete to site	None
PMCOPS265A	Prepare asphalt	None
PMCOPS270A	Operate forming equipment	None
PMCOPS271A	Operate wet and dry end equipment	None
PMCOPS272A	Produce fibrous plasterboard	None
PMCOPS290A	Use and maintain tools and equipment for refractory operations	None
PMCOPS291A	Prepare for, install and repair refractory brickwork/blockwork	None
PMCOPS292A	Prepare for and install mouldable refractory materials	None
PMCOPS293A	Prepare for and cast refractory materials	None
PMCOPS294A	Prepare for and apply shotcrete for installation	None
PMCOPS295A	Prepare for, install and repair ceramic fibre	None
PMCOPS300B	Set up and tune a process	None
PMCOPS301B	Operate centralised process control systems	None
PMCOPS310B	Process raw meal into product	None
PMCOPS320B	Prepare moulds and dies	None
PMCOPS321B	Set up and tune glazing equipment	None

Code	Title	Prerequisite
PMCOPS340B	Set up and optimise glass forming process	None
PMCOPS341B	Set up and optimise glass furnace process	None
PMCOPS342B	Set up and optimise secondary process	None
PMCOPS350B	Produce architectural precast concrete	None
PMCOPS351A	Produce structural precast concrete	None
PMCOPS370A	Design and construct moulds for fibrous plaster products	None
PMCOPS372A	Model fibrous plaster products	None
PMCOPS380A	Set up and optimise finishing process	None
PMCOPS390A	Test refractory materials	None
PMCOPS400B	Optimise process systems	None
PMCOPS420C	Design and prepare models, moulds and dies	None
PMCOPS490A	Undertake simple refractory design	None
PMCOPS491A	Analyse refractory failures	None
PMCOPS530B	Analyse equipment performance	None
PMCOPS531A	Choose materials for an application	None
PMCOPS630B	Develop a new product	None
PMCOPS631B	Design structural/mechanical components	None
PMCSUP170B	Shift materials safely	None
PMCSUP171B	Pack finished products	None
PMCSUP172B	Store materials for production	None
PMCSUP180A	Organise self	None
PMCSUP181A	Work in a team	None
PMCSUP270A	Move materials	None
PMCSUP271B	Operate bulk materials handling equipment	None
PMCSUP272A	Identify and act upon hazards in the workplace	None
PMCSUP273A	Receive and despatch materials	None
PMCSUP274B	Undertake minor maintenance	None
PMCSUP275A	Maintain kiln refractory	None
PMCSUP280A	Manage conflict at work	None

Code	Title	Prerequisite
PMCSUP281A	Deliver customer service	None
PMCSUP282A	Use computers and related programs in the workplace	None
PMCSUP283B	Allocate and complete team tasks	None
PMCSUP292A	Sample and test materials and product	None
PMCSUP380B	Oversee team performance	None
PMCSUP381B	Carry out stock control	None
PMCSUP382A	Provide coaching/mentoring in the workplace	None
PMCSUP391A	Collect and prepare standard samples	None
PMCSUP392A	Perform basic laboratory tests	None
PMCSUP393A	Perform instrumental analysis	None

Imported units of competency in this training package

Code	Title	Origin
BSBCM402A	Develop work priorities	BSB01
BSBCM404A	Develop teams and individuals	BSB01
BSBCM410A	Coordinate implementation of customer service strategies	BSB01
BSBCM412A	Promote innovation and change	BSB01
BSBFLM402A	Show leadership in the workplace	ZZZ00
BSBFLM403A	Manage effective workplace relationships	ZZZ00
BSBFLM404A	Lead work teams	ZZZ00
BSBFLM405A	Implement operational plan	ZZZ00
BSBFLM406A	Implement workplace information system	ZZZ00
BSBFLM409A	Implement continuous improvement	ZZZ00
BSBFLM504A	Facilitate work teams	ZZZ00
BSBFLM505A	Manage operational plan	ZZZ00
BSBFLM509A	Promote continuous improvement	ZZZ00
BSBFLM510A	Facilitate and capitalise on change and innovation	ZZZ00
BSBFLM511A	Develop a workplace learning environment	ZZZ00
BSZ401A	Plan assessment	BSZ98
BSZ402A	Conduct assessment	BSZ98
BSZ403A	Review assessment	BSZ98
BSZ404A	Train small groups	BSZ98
LMTEMG06A	Design equipment and system modifications	LMT00
LMTEMG07A	Manage installation and commissioning of equipment and systems	LMT00
LMTPDHL06A	Manage product development projects	LMT00
PMACOM300A	Contribute to the development of plant documentation	ZZZ00
PMAOHS100B	Follow OHS procedures	ZZZ00
PMAOHS110B	Respond to emergency situation	PMA02
PMAOHS200B	Participate in workplace safety procedures	PMA02

Code	Title	Origin
PMAOHS300B	Implement and monitor OHS policies and procedures for a work group	PMA02
PMAOHS400B	Contribute to workplace OHS management system	PMA02
PMAOHS401B	Assess risk	PMA02
PMAOHS503A	Maintain the workplace OHS management system	PMA02
PMAOHS510B	Manage risk	PMA02
PMAOHS601A	Establish workplace OHS management system	PMA02
PMAOPS101B	Read dials and indicators	PMA02
PMAOPS105B	Select and prepare materials	PMA02
PMAOPS212A	Use enterprise data system	PMA02
PMAOPS216A	Operate local control system	PMA02
PMAOPS401B	Trial new process/product	PMA02
PMAOPS511A	Determine energy transfer loads	PMA02
PMAOPS512A	Determine mass transfer loads	PMA02
PMAOPS520B	Manage utilities	PMA02
PMAOPS521B	Plan plant shut down	ZZZ00
PMAOPS600B	Modify plant	PMA02
PMAPER200C	Work in accordance with an issued permit	PMA02
PMAPER201C	Monitor and control work permits	PMA02
PMAPER205B	Enter confined space	PMA02
PMAPER300C	Issue work permits	PMA02
PMAPER302B	Issue work permits (hot work/confined space)	PMA02
PMAPROC101B	Make measurements	ZZZ00
PMASUP100B	Apply workplace procedures	PMA02
PMASUP110A	Relay and respond to information	PMA02
PMASUP120A	Follow environmental work practices	PMA02
PMASUP130B	Follow established work plan	PMA02
PMASUP200B	Implement production efficiencies	PMA02
PMASUP210A	Process and record information	PMA02

Code	Title	Origin
PMASUP220A	Monitor and control environmental hazards	PMA02
PMASUP300B	Identify and implement opportunities to maximise production efficiencies	PMA02
PMASUP320A	Implement and monitor environmental policies	PMA02
PMASUP330B	Schedule production	PMA02
PMASUP390A	Use structured problem solving tools	PMA02
PMASUP420A	Minimise environmental impact of process	PMA02
PMASUP520A	Review procedures to minimise environmental impact of process	PMA02
PMASUP620A	Manage environmental management system	PMA02
PMBPREP508A	Produce drawings	PMB01
PMBPROD230B	Monitor process operations	PMB01
PMBTECH502B	Review and analyse production trials and specify retrials	ZZZ00
PSPPM502A	Manage projects	ZZZ00
TDTC497C	Drive heavy rigid vehicle	TDT02
TDTD1097B	Operate a forklift	TDT02

List of units in PMC04 and mapping with PMC99

Mapping of PMC99 to PMC04

The following mapping, in PMC99 code order, shows the revised unit which replaces the existing unit. The next section maps PMC04 to PMC99 listing all units in PMC04.

PMC99		PMC04		Comment
Code	Unit title	Code	Unit title	
BSXFMI401A	Manage personal work priorities and professional development			An updated set of business/ frontline management units was imported
BSXFMI402A	Provide leadership in the workplace	BSBFLM402A	Show leadership in the workplace	Updated in line with revision of frontline management
BSXFMI403A	Establish and manage effective workplace relationships	BSBFLM403A	Manage effective workplace relationships	Updated in line with revision of frontline management
BSXFMI404A	Participate in, lead and facilitate work teams	BSBFLM404A	Lead work teams	Updated in line with revision of frontline management
BSXFMI405A	Manage operations to achieve planned outcomes	BSBFLM405A	Implement operational plan	Updated in line with revision of frontline management
BSXFMI406A	Manage workplace information	BSBFLM406A	Implement workplace information system	Updated in line with revision of frontline

				management
BSXFMI407A	Manage quality customer service			An updated quality suite was used
BSXFMI408A	Develop and maintain a safe workplace and environment			An updated safety suite was used
BSXFMI409A	Implement and monitor continuous improvement systems and processes	BSBFLM409A	Implement continuous improvement	Updated in line with revision of frontline management
BSXFMI410A	Facilitate and capitalise on change and innovation	BSBCMN412A	Promote innovation and change	Updated in line with revision of frontline management
BSXFMI411A	Contribute to the development of a workplace learning environment			An updated set of business/ frontline management units was imported
BSZ401A, 402A, 403A	Workplace assessor	BSZ401A/402A/ 403A	Plan assessment/Conduct assessment/Review assessment	Updated in line with revised assessor standards
BSZ404A	Train small groups	BSZ404A	Train small groups	Updated in line with revised trainer standards
BSZ405A, 406A 407A 408A	Workplace trainer category 2			Not specifically imported, but available for use under importation rules

PMACOM300A	Contribute to the development of plant documentation	PMACOM300A	Contribute to the development of plant documentation	Equivalent
PMAENV100A	Identify and minimise environmental hazards	PMASUP120A	Follow environmental work practices	The environment series has been revised. Replacement unit
PMAENV200A	Monitor and control environmental hazards	PMASUP220A	Monitor and control environmental hazards	Similar unit
PMAENV300A	Minimise environmental impact of process	PMASUP420A	Minimise environmental impact of process	Same unit but revised to AQF 4
PMAOH&S100A	Follow OH&S policies and procedures			An updated safety suite was used
PMAOH&S200A	Implement and monitor OH&S policies and procedures			An updated safety suite was used
PMAOH&S400A	Establish, maintain and evaluate an OH&S system			An updated safety suite was used
PMAPLAN300A	Schedule production	PMASUP330A	Schedule production	Equivalent
PMAPROC101A	Make measurements	PMAPROC101B	Make measurements	Equivalent
PMAQUAL400A	Develop and monitor quality systems			An updated quality suite was used
PMCCOR101A	Relay and respond to information	PMASUP110A	Relay and respond to information	Equivalent
PMCCOR102A	Clean plant and	PMCCOR102A	Clean plant and equipment	Equivalent

	equipment			
PMCOPS103A	Operate equipment	PMCOPS103B	Operate equipment	Equivalent
PMCOPS201A	Operate a unit of equipment	PMCOPS201B	Operate a unit of equipment	Equivalent
PMCOPS202A	Operate equipment to blend/mix materials	PMCOPS202B	Operate equipment to blend/mix materials	Equivalent
PMCOPS203A	Operate grinding equipment	PMCOPS203B	Operate grinding equipment	Equivalent
PMCOPS204A	Prepare for production	PMCOPS204B	Prepare for production	Equivalent
PMCOPS205A	Process greenware/green products	PMCOPS205B	Process greenware/green products	Equivalent
PMCOPS206A	Operate an autoclave	PMCOPS206B	Operate an autoclave	Equivalent
PMCOPS210A	Operate a Calcining kiln	PMCOPS210B	Operate a Calcining kiln	Equivalent
PMCOPS220A	Operate slip casting equipment	PMCOPS220B	Operate slip casting equipment	Equivalent
PMCOPS221A	Operate manual glazing equipment	PMCOPS221B	Operate manual glazing equipment	Equivalent
PMCOPS222A	Prepare raw materials for clay and ceramic production	PMCOPS222B	Prepare materials for clay and ceramic production	Equivalent
PMCOPS223A	Finish products after firing	PMCOPS223B	Finish products after firing	Equivalent
PMCOPS224A	Hand mould ceramics	PMCOPS224B	Hand mould products	Equivalent, although broadened in range

PMCOPS230A	Operate a firing kiln	PMCOPS230B	Operate a firing kiln	Equivalent
PMCOPS231A	Operate extrusion equipment	PMCOPS231B	Operate extrusion equipment	Equivalent
PMCOPS232A	Operate pressing equipment	PMCOPS232B	Operate pressing equipment	Equivalent
PMCOPS240A	Operate melting process	PMCOPS240B	Operate melting process	Equivalent
PMCOPS241A	Operate process ovens	PMCOPS241B	Operate process ovens	Equivalent
PMCOPS242A	Operate blown insulation equipment	PMCOPS242B	Operate blown insulation equipment	Equivalent
PMCOPS243A	Operate float forming equipment	PMCOPS243B	Operate float forming equipment	Equivalent
PMCOPS244A	Operate fibre forming equipment	PMCOPS244B	Operate fibre forming equipment	Equivalent
PMCOPS245A	Operate container forming equipment	PMCOPS245B	Operate container forming equipment	Equivalent
PMCOPS246A	Operate printing and edgework equipment	PMCOPS246B	Operate glass printing equipment	Equivalent
PMCOPS247A	Operate primary annealing equipment	PMCOPS247B	Operate primary annealing equipment	Equivalent
PMCOPS248A	Operate glass finishing equipment	PMCOPS248B	Operate glass finishing equipment	Equivalent
PMCOPS249A	Operate flat glass processing equipment	PMCOPS249B	Operate on line stacking and assembly equipment	Equivalent
PMCOPS250A	Fabricate reinforcement			This unit has been split into PMCOPS250B and PMCOPS256A

PMCOPS251A	Finish green concrete products	PMCOPS251B	Finish green concrete products	Equivalent
PMCOPS252A	Make moulded concrete products			This unit has been split into PMCOPS252B, PMCOPS257A and PMCOPS258A
PMCOPS253A	Finish cured concrete products	PMCOPS253B	Finish cured concrete products	Equivalent
PMCOPS254A	Spin concrete pipes	PMCOPS254B	Spin concrete pipes	Equivalent
PMCOPS255A	Conduct benching operations	PMCOPS255B	Conduct benching operations	Equivalent
PMCOPS260A	Batch mix concrete	PMCOPS260B	Batch mix concrete	Equivalent
PMCOPS261A	Deliver concrete to site	PMCOPS261B	Deliver concrete to site	Equivalent
PMCOPS300A	Set up and tune a process	PMCOPS300B	Set up and tune a process	Equivalent
PMCOPS301A	Operate centralised process control systems	PMCOPS301B	Operate centralised process control systems	Equivalent
PMCOPS310A	Process raw meal into product	PMCOPS310B	Process raw meal into product	Equivalent
PMCOPS320A	Design and prepare models, moulds and dies	PMCOPS420B	Design and prepare models, moulds and dies	Equivalent
PMCOPS321A	Set up and tune glazing equipment	PMCOPS321B	Set up and tune glazing equipment	Equivalent
PMCOPS340A	Set up and optimise glass forming process	PMCOPS340B	Set up and optimise glass forming process	Equivalent
PMCOPS341A	Set up and optimise glass furnace processes	PMCOPS341B	Set up and optimise glass furnace processes	Equivalent
PMCOPS342A	Set up and optimise secondary process	PMCOPS342B	Set up and optimise secondary process	Equivalent

PMCOPS350A	Produce architectural and structural precast concrete			This unit has been split into PMCOPS350B and PMCOPS351A
PMCOPS400A	Optimise process systems	PMCOPS400B	Optimise process systems	Equivalent
PMCSUP170A	Shift materials safely	PMCSUP170B	Shift materials safely	Equivalent
PMCSUP171A	Pack finished products	PMCSUP171B	Pack finished products	Equivalent
PMCSUP172A	Store materials for production	PMCSUP172B	Store materials for production	Equivalent
PMCSUP180A	Organise self	PMCSUP180A	Organise self	Equivalent
PMCSUP181A	Work in a team	PMCSUP181A	Work in a team	Equivalent
PMCSUP190A	Apply quality processes			An updated quality suite was used
PMCSUP270A	Move materials	PMCSUP270A	Move materials	Equivalent
PMCSUP271A	Operate bulk materials handling equipment	PMCSUP271B	Operate bulk materials handling equipment	Equivalent
PMCSUP272A	Identify and act upon hazards in the workplace	PMCSUP272A	Identify and act upon hazards in the workplace	Equivalent
PMCSUP273A	Receive and despatch materials	PMCSUP273A	Receive and despatch materials	Equivalent
PMCSUP274A	Undertake minor maintenance	PMCSUP274B	Undertake minor maintenance	Equivalent
PMCSUP275A	Maintain kiln refractory	PMCSUP275A	Maintain kiln refractory	Equivalent
PMCSUP280A	Manage conflict at work	PMCSUP280A	Manage conflict at work	Equivalent
PMCSUP281A	Deliver customer service	PMCSUP281A	Deliver customer service	Equivalent

PMCSUP282A	Use computers and related programs in the workplace	PMCSUP282A	Use computers and related programs in the workplace	Equivalent
PMCSUP283A	Allocate and complete team tasks	PMCSUP283B	Allocate and complete team tasks	Equivalent
PMCSUP290A	Monitor and maintain product quality			An updated quality suite was used
PMCSUP291A	Participate in continuous improvement			An updated quality suite was used
PMCSUP292A	Sample and test materials and product	PMCSUP292A	Sample and test materials and product	Equivalent
PMCSUP380A	Oversee team performance	PMCSUP380B	Oversee team performance	Equivalent
PMCSUP381A	Perform purchase control	PMCSUP381B	Carry out stock control	Equivalent
PMCSUP390A	Solve problems using 'quality tools'	PMASUP390A	Use structured problem solving tools	An updated quality suite was used
PMCSUP391A	Collect and prepare standard samples	PMCSUP391A	Collect and prepare standard samples	Equivalent
PMCSUP392A	Perform basic laboratory tests	PMCSUP392A	Perform basic laboratory tests	Equivalent
PMCSUP393A	Perform instrumental analysis	PMCSUP393A	Perform instrumental analysis	Equivalent
TDTC497A	Driving heavy rigid vehicles	TDTC497C	Drive heavy rigid vehicle	Equivalent

List of units in PMC04 and mapping to PMC99

The following table list all units in PMC04, in code order and maps them to PMC99 units.

PMC04	PMC99	Comment
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Code	Unit title	Code	Unit title	
BSBCMN402A	Develop work priorities			New frontline management unit
BSBCMN404A	Develop teams and individuals			New frontline management unit
BSBCMN410A	Coordinate implementation of customer service strategies			New frontline management unit
BSBCMN412A	Promote innovation and change	BSXFMI410A	Facilitate and capitalise on change and innovation	Updated in line with revision of frontline management
BSBFLM402A	Show leadership in the workplace	BSXFMI402A	Provide leadership in the workplace	Updated in line with revision of frontline management
BSBFLM403A	Manage effective workplace relationships	BSXFMI403A	Establish and manage effective workplace relationships	Updated in line with revision of frontline management
BSBFLM404A	Lead work teams	BSXFMI404A	Participate in, lead and facilitate work teams	Updated in line with revision of frontline management
BSBFLM405A	Implement operational plan	BSXFMI405A	Manage operations to achieve planned outcomes	Updated in line with revision of frontline management
BSBFLM406A	Implement workplace information system	BSXFMI406A	Manage workplace information	Updated in line with revision of frontline management
BSBFLM409A	Implement continuous improvement	BSXFMI409A	Implement and monitor continuous improvement systems and processes	Updated in line with revision of frontline management
BSBFLM504A	Facilitate work teams			Higher level units than PMC99
BSBFLM505A	Manage operational plan			Higher level units than PMC99
BSBFLM509A	Promote continuous			Higher level units than PMC99

	improvement			
BSBFLM510A	Facilitate and capitalise on change and innovation			Higher level units than PMC99
BSBFLM511A	Develop a workplace learning environment			Higher level units than PMC99
BSZ401A/ 402A/ 403A	Plan assessment/Conduct assessment/Review assessment	BSZ401A, 402A, 403A	Workplace Assessor	Updated in line with revised assessor standards
BSZ404A	Train small groups	BSZ404A	Train small groups	Updated in line with revised trainer standards
LMTEMGN06A	Design equipment and system modifications			New to PMC04
LMTEMGN07A	Manage installation and commissioning of equipment and systems			New to PMC04
LMTPDHL06A	Manage product development projects			New to PMC04
PMACOM300A	Contribute to the development of plant documentation	PMACOM300A	Contribute to the development of plant documentation	Equivalent
PMAOHS100B	Follow OHS procedures			New OHS suite
PMAOHS110B	Respond to emergency situation			New OHS suite
PMAOHS200B	Participate in workplace safety procedures			New OHS suite
PMAOHS300B	Implement and monitor OHS policies and procedures for a work group			New OHS suite

PMAOHS400B	Contribute to workplace OHS management system			New OHS suite
PMAOHS401B	Assess risk			New OHS suite
PMAOHS503A	Maintain the workplace OHS management system			New OHS suite
PMAOHS510B	Manage risk			New OHS suite
PMAOHS601A	Establish workplace OHS management system			New OHS suite
PMAOPS101B	Read dials and indicators			New to PMC04
PMAOPS212A	Use enterprise data system			New to PMC04
PMAOPS216A	Operate local control system			New to PMC04
PMAOPS401B	Trial new process/product			New to PMC04
PMAOPS511A	Determine energy transfer loads			New to PMC04
PMAOPS512A	Determine mass transfer loads			New to PMC04
PMAOPS520B	Manage utilities			New to PMC04
PMAOPS521B	Plan plant shutdown			New to PMC04
PMAOPS600B	Modify plant			New to PMC04
PMAPER200C	Work in accordance with an issued permit			New to PMC04
PMAPER201C	Monitor and control work permits			New to PMC04
PMAPER205B	Enter confined space			New to PMC04

PMAPER300C	Issue work permits			New to PMC04
PMAPER302B	Issue work permits (hot work/confined space)			New to PMC04
PMAPROC101B	Make measurements	PMAPROC101A	Make measurements	Equivalent
PMASUP100B	Apply workplace procedures			New quality suite
PMASUP110A	Relay and respond to information	PMCCOR101A	Relay and respond to information	Equivalent
PMASUP120A	Follow environmental work practices	PMAENV100A	Identify and minimise environmental hazards	The environment series has been revised. Replacement unit
PMASUP130B	Follow established work plan			New to PMC04
PMASUP200B	Implement production efficiencies			New quality suite
PMASUP210A	Process and record information			New to PMC04
PMASUP220A	Monitor and control environmental hazards	PMAENV200A	Monitor and control environmental hazards	Similar unit
PMASUP300B	Identify and implement opportunities to maximise production efficiencies			New quality suite
PMASUP320A	Implement and monitor environmental policies			The environment series has been revised. Replacement unit
PMASUP330B	Schedule production	PMAPLAN300A	Schedule production	Equivalent
PMASUP390A	Use structured problem solving tools	PMCSUP390A	Solve problems using 'quality tools'	Equivalent

PMASUP420A	Minimise environmental impact of process	PMAENV300A	Minimise environmental impact of process	Same unit but revised to AQF 4
PMASUP520A	Review procedures to minimise environmental impact of process			New environment unit for PMC04
PMASUP620A	Manage environmental management system			New environment unit for PMC04
PMBPREP508A	Produce drawings			New to PMC04
PMBPROD230B	Monitor process operations			New to PMC04
PMBTECH502B	Review and analyse production trials and specify retrials			New to PMC04
PMCCOR102A	Clean plant and equipment	PMCCOR102A	Clean plant and equipment	Equivalent
PMCOPS103B	Operate equipment	PMCOPS103A	Operate equipment	Equivalent
PMCOPS201B	Operate a unit of equipment	PMCOPS201A	Operate a unit of equipment	Equivalent
PMCOPS202B	Operate equipment to blend/mix materials	PMCOPS202A	Operate equipment to blend/mix materials	Equivalent
PMCOPS203B	Operate grinding equipment	PMCOPS203A	Operate grinding equipment	Equivalent
PMCOPS204B	Prepare for production	PMCOPS204A	Prepare for production	Equivalent
PMCOPS205B	Process greenware/green products	PMCOPS205A	Process greenware/green products	Equivalent
PMCOPS206B	Operate an autoclave	PMCOPS206A	Operate an autoclave	Equivalent
PMCOPS207A	Heat accelerate the curing of precast concrete			New to PMC04

PMCOPS208A	Operate crushing equipment			New to PMC04
PMCOPS210B	Operate a Calcining kiln	PMCOPS210A	Operate a calcining kiln	Equivalent
PMCOPS220B	Operate slip casting equipment	PMCOPS220A	Operate slip casting equipment	Equivalent
PMCOPS221B	Operate manual glazing equipment	PMCOPS221A	Operate manual glazing equipment	Equivalent
PMCOPS222B	Prepare materials for clay and ceramic production	PMCOPS222A	Prepare raw materials for clay and ceramic production	Equivalent
PMCOPS223B	Finish products after firing	PMCOPS223A	Finish products after firing	Equivalent
PMCOPS224B	Hand mould products	PMCOPS224A	Hand mould ceramics	Equivalent although broadened in range
PMCOPS230B	Operate a firing kiln	PMCOPS230A	Operate a firing kiln	Equivalent
PMCOPS231B	Operate extrusion equipment	PMCOPS231A	Operate extrusion equipment	Equivalent
PMCOPS232B	Operate pressing equipment	PMCOPS232A	Operate pressing equipment	Equivalent
PMCOPS240B	Operate melting process	PMCOPS240A	Operate melting process	Equivalent
PMCOPS241B	Operate process ovens	PMCOPS241A	Operate process ovens	Equivalent
PMCOPS242B	Operate blown insulation equipment	PMCOPS242A	Operate blown insulation equipment	Equivalent
PMCOPS243B	Operate float forming equipment	PMCOPS243A	Operate float forming equipment	Equivalent
PMCOPS244B	Operate fibre forming equipment	PMCOPS244A	Operate fibre forming equipment	Equivalent
PMCOPS245B	Operate container forming	PMCOPS245A	Operate container forming	Equivalent

	equipment		equipment	
PMCOPS246B	Operate glass printing equipment	PMCOPS246A	Operate printing and edgework equipment	Equivalent
PMCOPS247B	Operate primary annealing equipment	PMCOPS247A	Operate primary annealing equipment	Equivalent
PMCOPS248B	Operate glass finishing equipment	PMCOPS248A	Operate glass finishing equipment	Equivalent
PMCOPS249B	Operate on line stacking and assembly equipment	PMCOPS249A	Operate flat glass processing equipment	Equivalent
PMCOPS250B	Schedule, cut and bend reinforcement			Part of PMCOPS250A. The other part is PMCOPS256A
PMCOPS251B	Finish green concrete products	PMCOPS251A	Finish green concrete products	Equivalent
PMCOPS252B	Cast moulded concrete products			Part of PMCOPS252A. Other parts are PMCOPS257A and PMCOPS258A
PMCOPS253B	Finish cured concrete products	PMCOPS253A	Finish cured concrete products	Equivalent
PMCOPS254B	Spin concrete pipes	PMCOPS254A	Spin concrete pipes	Equivalent
PMCOPS255B	Conduct benching operations	PMCOPS255A	Conduct benching operations	Equivalent
PMCOPS256A	Assemble, fabricate and place reinforcement			Part of PMCOPS250A. The other part if PMCOPS250B
PMCOPS257A	Finish casting operation			Part of PMCOPS252A. Other parts are PMCOPS252B and PMCOPS258A
PMCOPS258A	Demould concrete products			Part of PMCOPS252A. Other

				parts are PMCOPS257A and PMCOPS252B
PMCOPS260B	Batch mix concrete	PMCOPS260A	Batch mix concrete	Equivalent
PMCOPS261B	Deliver concrete to site	PMCOPS261A	Deliver concrete to site	Equivalent
PMCOPS265A	Prepare asphalt			New to PMC04
PMCOPS270A	Operate forming equipment			New to PMC04
PMCOPS271A	Operate wet and dry end equipment			New to PMC04
PMCOPS272A	Produce fibrous plasterboard			New to PMC04
PMCOPS290A	Use and maintain tools and equipment for refractory operations			New to PMC04
PMCOPS291A	Prepare for, install and repair refractory brickwork/blockwork			New to PMC04
PMCOPS292A	Prepare for and install mouldable refractory materials			New to PMC04
PMCOPS293A	Prepare for and cast refractory materials			New to PMC04
PMCOPS294A	Prepare for and apply shotcrete for installation			New to PMC04
PMCOPS295A	Prepare for, install and repair ceramic fibre			New to PMC04
PMCOPS300B	Set up and tune a process	PMCOPS300A	Set up and tune a process	Equivalent

PMCOPS301B	Operate centralised process control systems	PMCOPS301A	Operate centralised process control systems	Equivalent
PMCOPS310B	Process raw meal into product	PMCOPS310A	Process raw meal into product	Equivalent
PMCOPS320B	Prepare moulds and dies			New to PMC04
PMCOPS321B	Set up and tune glazing equipment	PMCOPS321A	Set up and tune glazing equipment	Equivalent
PMCOPS340B	Set up and optimise glass forming process	PMCOPS340A	Set up and optimise glass forming process	Equivalent
PMCOPS341B	Set up and optimise glass furnace processes	PMCOPS341A	Set up and optimise glass furnace processes	Equivalent
PMCOPS342B	Set up and optimise secondary process	PMCOPS342A	Set up and optimise secondary process	Equivalent
PMCOPS350B	Produce architectural precast concrete			Part of PMCOPS350A. Other part is PMCOPS351A
PMCOPS351A	Produce structural precast concrete			Part of PMCOPS350A. Other part is PMCOPS350B
PMCOPS370A	Design and construct moulds for fibrous plaster products			New to PMC04
PMCOPS372A	Model fibrous plaster products			New to PMC04
PMCOPS380A	Set up and optimise finishing process			New to PMC04
PMCOPS390A	Test refractory materials			New to PMC04
PMCOPS400B	Optimise process systems	PMCOPS400A	Optimise process systems	Equivalent

PMCOPS420C	Design and prepare models, moulds and dies	PMCOPS320A	Design and prepare models, moulds and dies	Equivalent
PMCOPS490A	Undertake simple refractory design			New to PMC04
PMCOPS491A	Analyse refractory failures			New to PMC04
PMCOPS530B	Analyse equipment performance			New to PMC04
PMCOPS531A	Choose materials for an application			New to PMC04
PMCOPS630B	Develop a new product			New to PMC04
PMCOPS631B	Design structural/mechanical components			New to PMC04
PMCSUP170B	Shift materials safely	PMCSUP170A	Shift materials safely	Equivalent
PMCSUP171B	Pack finished products	PMCSUP171A	Pack finished products	Equivalent
PMCSUP172B	Store materials for production	PMCSUP172A	Store materials for production	Equivalent
PMCSUP180A	Organise self	PMCSUP180A	Organise self	Equivalent
PMCSUP181A	Work in a team	PMCSUP181A	Work in a team	Equivalent
PMCSUP270A	Move materials	PMCSUP270A	Move materials	Equivalent
PMCSUP271B	Operate bulk materials handling equipment	PMCSUP271A	Operate bulk materials handling equipment	Equivalent
PMCSUP272A	Identify and act upon hazards in the workplace	PMCSUP272A	Identify and act upon hazards in the workplace	Equivalent
PMCSUP273A	Receive and despatch materials	PMCSUP273A	Receive and despatch	Equivalent

			materials	
PMCSUP274B	Undertake minor maintenance	PMCSUP274A	Undertake minor maintenance	Equivalent
PMCSUP275A	Maintain kiln refractory	PMCSUP275A	Maintain kiln refractory	Equivalent
PMCSUP280A	Manage conflict at work	PMCSUP280A	Manage conflict at work	Equivalent
PMCSUP281A	Deliver customer service	PMCSUP281A	Deliver customer service	Equivalent
PMCSUP282A	Use computers and related programs in the workplace	PMCSUP282A	Use computers and related programs in the workplace	Equivalent
PMCSUP283B	Allocate and complete team tasks	PMCSUP283A	Allocate and complete team tasks	Equivalent
PMCSUP292A	Sample and test materials and product	PMCSUP292A	Sample and test materials and product	Equivalent
PMCSUP380B	Oversee team performance	PMCSUP380A	Oversee team performance	Equivalent
PMCSUP381B	Carry out stock control	PMCSUP381A	Perform purchase control	Equivalent
PMCSUP382A	Provide coaching/mentoring in the workplace			New to PMC04
PMCSUP391A	Collect and prepare standard samples	PMCSUP391A	Collect and prepare standard samples	Equivalent
PMCSUP392A	Perform basic laboratory tests	PMCSUP392A	Perform basic laboratory tests	Equivalent
PMCSUP393A	Perform instrumental analysis	PMCSUP393A	Perform instrumental analysis	Equivalent
PSPPM502A	Manage projects			New to PMC04
TDTC497C	Drive heavy rigid vehicle	TDTC497A	Driving heavy rigid vehicles	Equivalent
TDTD1097B	Operate a forklift			New to PMC04

Explanation of the review date

The review date (shown on the title page and in the header of each page) indicates when the Training Package is expected to be reviewed in the light of changes such as changing technologies and circumstances. The review date is not an expiry date. Endorsed Training Packages and their components remain current until they are reviewed or replaced.

Overview

What is a Training Package?

A Training Package is an integrated set of nationally endorsed competency standards, assessment guidelines and Australian Qualifications Framework (AQF) qualifications for a specific industry, industry sector or enterprise.

Each Training Package:

- provides a consistent and reliable set of components for training, recognising and assessing people's skills, and may also have optional support materials
- enables nationally recognised qualifications to be awarded through direct assessment of workplace competencies
- encourages the development and delivery of flexible training which suits individual and industry requirements
- encourages learning and assessment in a work-related environment which leads to verifiable workplace outcomes.

How do Training Packages fit within the National Training Framework?

The National Training Framework is made up of the nationally agreed quality arrangements for the vocational education and training sector, the Australian Quality Training Framework (AQTF), and Training Packages endorsed by the National Training Quality Council (NTQC).

How are Training Packages developed?

Training Packages are developed by Industry Skills Councils or enterprises to meet the identified training needs of specific industries or industry sectors. To gain national endorsement of Training Packages, developers must provide evidence of extensive research, consultation and support within the industry area or enterprise.

How do Training Packages encourage flexibility?

Training Packages describe the skills and knowledge needed to perform effectively in the workplace without prescribing how people should be trained.

Training Packages acknowledge that people can achieve vocational competency in many ways by emphasising what the learner can do, not how or where they learned to do it. For example, some experienced workers might be able to demonstrate competency against the units of competency, and even gain a qualification, without completing a formal training program.

With Training Packages, assessment and training may be conducted at the workplace, off-the-job, at a training organisation, during regular work, or through work experience, work placement, work simulation or any combination of these.

Who can deliver and assess using Training Packages?

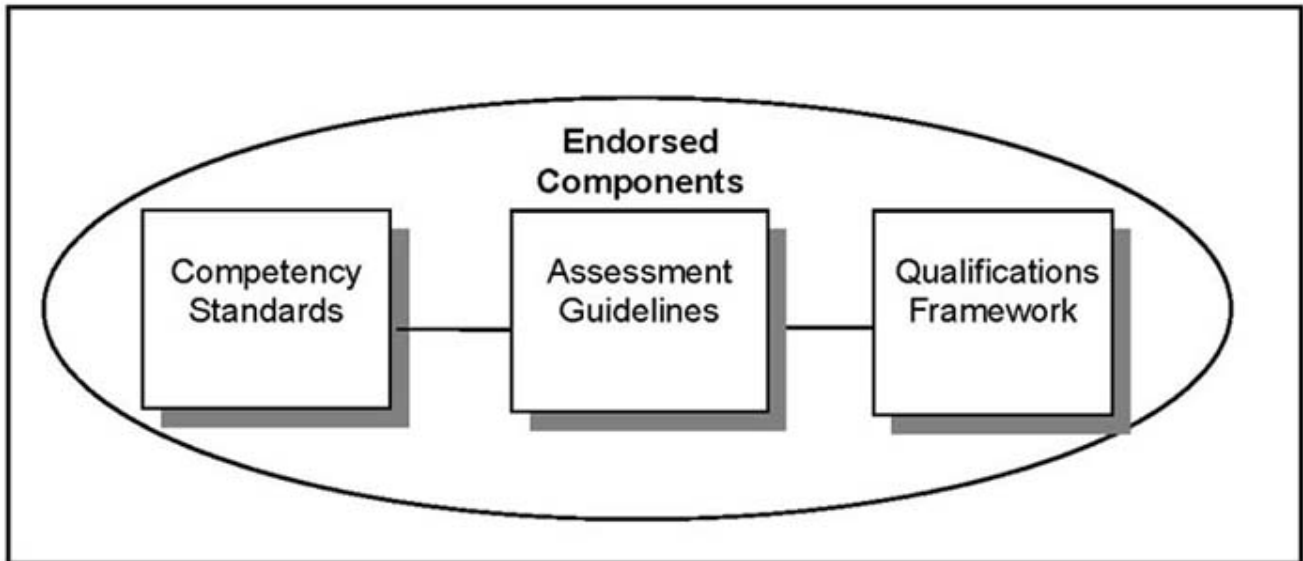
Training and assessment using Training Packages must be conducted by a Registered Training Organisation (RTO) that has the qualifications or specific units of competency on its scope of registration, or that works in partnership with another RTO as specified in the AQTF *Standards for Registered Training Organisations*.

Training Package Components

Training Packages are made up of mandatory components endorsed by the NTQC, and optional support materials.

Training Package Endorsed Components

The nationally endorsed components include the Competency Standards, Assessment Guidelines and Qualifications Framework. These form the basis of training and assessment in the Training Package and, as such, they must be used.



Competency Standards

Each unit of competency identifies a discrete workplace requirement and includes the knowledge and skills that underpin competency as well as language, literacy and numeracy; and occupational health and safety requirements. The units of competency must be adhered to in training and assessment to ensure consistency of outcomes.

Assessment Guidelines

The Assessment Guidelines provide an industry framework to ensure all assessments meet industry needs and nationally agreed standards as expressed in the Training Package and the *Standards for Registered Training Organisations*. The Assessment Guidelines must be followed to ensure the integrity of assessment leading to nationally recognised qualifications.

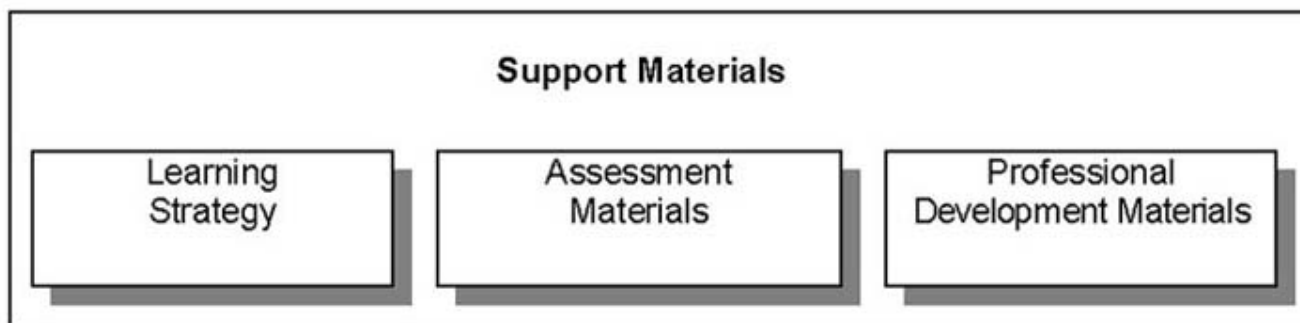
Qualifications Framework

Each Training Package provides details of those units of competency that must be achieved to award AQF qualifications. The rules around which units of competency can be combined to make up a valid AQF qualification in the Training Package are referred to as the 'packaging rules'. The packaging rules must be followed to ensure the integrity of nationally recognised qualifications issued.

Training Package Support Materials

The endorsed components of Training Packages are complemented and supported by optional support materials that provide for choice in the design of training and assessment to meet the needs of industry and learners.

Training Package support materials can relate to single or multiple units of competency, an industry sector, a qualification or the whole Training Package. They tend to fall into one or more of the categories illustrated below.



Training Package support materials are produced by a range of stakeholders such as RTOs, individual trainers and assessors, private and commercial developers and Government agencies.

Where such materials have been quality assured through a process of 'noting' by the NTQC, they display the following official logo. Noted support materials are listed on the National Training Information Service (NTIS), together with a detailed description and information on the type of product and its availability (www.ntis.gov.au).



It is not compulsory to submit support materials for noting; any resources that meet the requirements of the Training Package can be used.

Training Package, Qualification and Unit of Competency Codes

There are agreed conventions for the national codes used for Training Packages and their components. Always use the correct codes, exactly as they appear in the Training Package, **and with the title always following the code.**

Training Package Codes

Each Training Package has a unique five-character national code assigned when the Training Package is endorsed, for example PMC04. The first three characters are letters identifying the Training Package industry coverage and the last two characters are numbers identifying the year of endorsement.

Qualification Codes

Within each Training Package, each qualification has a unique eight-character code, for example PMC10104. The first three letters identify the Training Package; the first number identifies the qualification level (noting that arabic numbers are not used in qualification titles themselves); the next two numbers identify the position in the sequence of the qualification at that level; and the last two numbers identify the year in which the qualification was endorsed. (Where qualifications are added after the initial Training Package endorsement, the last two numbers may differ from other Training Package qualifications as they identify the year in which those particular qualifications were endorsed).

Unit of Competency Codes

Within each Training Package, each unit of competency has a unique code. The unit of competency codes are assigned when the Training Package is endorsed, or when new units of competency are added to an existing endorsed Training Package.

A typical code is made up of 12 characters, normally a mixture of uppercase letters and numbers, as in PMCCOR102A. The first three characters signify the Training Package (PMC04 Manufactured Mineral Products Training Package in the above example) and up to eight characters, relating to an industry sector, function or skill area, follow. The last character is always a letter and identifies the unit of competency version. The 'A' in the example above indicates that this is the original unit of competency. An incremented version identifier usually means that minor changes have been made. Typically this would mean that wording has changed in the range statement or evidence guide, providing clearer intent. Where changes are made that alter the outcome, a new code is assigned and the title is changed.

Training Package, Qualification and Unit of Competency Titles

There are agreed conventions for titling Training Packages and their components. Always use the correct titles, exactly as they appear in the Training Package, and with the code always placed before the title.

Training Package Titles

The title of each endorsed Training Package is unique and relates the Training Package's broad industry coverage.

Qualification Titles

The title of each endorsed Training Package qualification is unique. Qualification titles use the following sequence:

- firstly, the qualification is identified as either Certificate I, Certificate II, Certificate III, Certificate IV, Diploma or Advanced Diploma
- this is followed by the words 'in' for Certificates I to IV and 'of' for Diploma and Advanced Diploma
- then the industry descriptor follows, for example Telecommunications, and
- if applicable, the occupational or functional stream follows in brackets, for example (Computer Systems).

For example:

- PMC10104 Certificate I in Manufactured Mineral Products
- PMC20104 Certificate II in Manufactured Mineral Products

Unit of Competency Titles

Each unit of competency title is unique. Unit of competency titles describe the competency outcome concisely, and are written in sentence case.

For example:

- PMCCOR102A Clean plant and equipment
- PMCOPS103B Operate equipment

Development of PMC04

PMC99

The original Manufactured Mineral Products Training Package was developed by Manufacturing Learning Australia (MLA) with funding provided by the Australian National Training Authority (ANTA). The development was done by Total Training and Performance Solutions (TaPS) during the second half of 1998. The Training Package was endorsed by the National Training Framework Committee (NTFC) on 22/6/99 and agreed by all State and Territory ministers on 7/7/99.

ANTA also funded the Office of Technical and Further Education of Victoria to develop an implementation guide (now called a purchasing guide). This became available in late 1999. Implementation guides (or their equivalents) became available in other States after this time. After the availability of the guides, State and Territory Industry Training Advisory Bodies began a round of implementation workshops.

PMC99 received the maximum three years endorsement.

The review process

The review occurred in two stages. Phase I of the review (conducted by TaPS) to determine the strengths and weaknesses of PMC99 and the scope of revisions needed was conducted from July to December 2001. The Phase II review (conducted by TaPS) commenced in May 2002 and was concluded in May 2003.

National consultations were held using focus groups and individual interviews. Technical experts were used for writing/reviewing units of competency in specific areas. The draft new units and revised existing units were validated through a similar mechanism. A list of all those who participated begins on the next page.

This review was the last of the MLA's manufacturing Training Packages to be reviewed and the industry steering committee took the view that it would be desirable to maximise the communality between these packages and to also maximise the application of the learning from the previous review projects to this one. As a result, a significant number of units from the Chemical, Hydrocarbons and Oil Refining Training Package (PMA02) were trialed, and eventually adopted into this Training Package.

The review also occurred during a period of significant uncertainty in the VET sector itself, with many State ITABs being forced to close due to changes in the funding arrangements. This led to the need to adapt methodology to the changing situation as the project progressed.

The industry steering committee contained a wide spread of both industry and RTO representation, as well as STA and ITAB representation. It contributed to the design of the reviewed Training Package as well as providing critical feedback on all components.

Awards, licensing and other regulatory issues

Various awards apply within this industry, and some employees are non-award. This Training Package was designed to allow for these different arrangements. It is appropriate to use this Training Package as part of an award/agreement, but it has not been designed to fit any particular award.

There are no general licensing issues, however specific licenses may be required in some jobs. The local regulations should be checked for details. The industry is generally subject to a range of regulatory control such as environmental licenses. These vary with the nature of

the facility and to some extent on its location as most regulations are State based and many are enforced by local government. This Training Package allows for these differences without mandating them to specific units of competency which would not be appropriate.

The steering committee

The steering committee contributed much time and expertise to this project and their contribution is gratefully acknowledged. The steering committee members were:

Ms Meg Collins-Hughes	Pilkington Australia	VIC
Mr Gus Steegstra	Darley Refractories	VIC
Mr James Collings	Blue Circle Southern Cement	VIC
Mr Paul Currie	Australian Workers Union	NSW
Mr Remy Jayasekere	Advanced Manufacturing Technology Centre	WA
Mike McLeay	MD and Associates	NSW
Mr Malcolm McIntosh	Manufacturing Learning South Australia	SA
Mr Maurie Bellaver	Department of Employment and Training	QLD
Ms Di Paton	ANTA	QLD
Mr Tom Gibson	Groundwork Development	VIC
Kevin Hummel	Total Training and Performance Solutions	NSW
Ms Wendy Davies	Manufacturing Learning Australia	VIC

The industry participants

Many people made time in their busy schedule to participate in this project. Without their expertise and input, the project would not have been able to achieve its objectives and this is also gratefully acknowledged. The participants were:

Serge	Arcuili	Rescrete	NSW
Carolyn	Barlow	Australian Cement	NSW
Alan	Blanch	ARB management Services Pty Ltd	NSW
Peter	Casey	Boral	NSW
Bruno	D'Souza	Degussa Construction Chemicals	NSW
John	Davey	Boral	NSW
Gary	de Wall	Workplace Australia Group	NSW
Sam	Diguiseppe	Besser Block Co/Boral Masonry	NSW
Leslie	Faulstone	TAFE NSW Manufacturing & Engineering	NSW
Peter	Garland	Garland Management	NSW

Athol	Gudgeon	Boral (retired)	NSW
Noel	Gurney	CSR Humes	NSW
Tony	Hall	CSR Humes	NSW
Sami	Ishak	TAFE NSW, SSI	NSW
Rick	Jones	CSR Humes	NSW
Peter	Keat	Rocla Pipeline Products	NSW
Bob	Kefford	TAFE NSW, WSIT	NSW
Daniel	Knapp	Rocla Building Products	NSW
Carla	Lauricella	Applied Training Solutions	NSW
Ian	Leask	Boral Asphalt	NSW
Brian	Mallon	National Precast Concrete Association	NSW
The	Manager	Elegant Garden World	NSW
The	Manager	JCV Concrete Products	NSW
The	Manager	Pacific Cement Supplies	NSW
Brent	McCorkell	McCorkell Products	NSW
Patrick	McGuire	Concrete Pipe Association of Australasia	NSW
Ian	Mclean	Boral Asphalt	NSW
Michael	McLeay	MD & Associates Pty Ltd	NSW
Mark	Murling,	Rocla Building Products	NSW
Chris	Nail	Foseco Pty Ltd	NSW
Sue Anne	Randezzo	Workplace Australia Group	NSW
Paul	Richardson	TAFE NSW, SSI	NSW
Jenny	Ruff	James Hardie Building Products	NSW
Keith	Shumack	Australian Cement, Kandos	NSW
Toni	Smidt	Boral Asphalt	NSW
Stephen	Wilkinson	TAFE, NSW Illawarra Institute, Wollongong	NSW
L	Winter	L & M Winter	NSW
Stephen	Wolstenholme	Rocla Pipeline Products	NSW
Chris		Thomson's Concrete Products Pty Ltd	NSW
Steve	Blacklock	Northern Cement	NT

Peter	Liversidge	CSR Readymix	NT
Harry	Clark	Excel Concrete Pty Ltd	QLD
Greg	Flemming	Excel Concrete Pty Ltd	QLD
Linda	Kennedy	Australian Pre-Mixed Concrete Association	QLD
Heaton	Pittendreigh	Byfield Pottery	QLD
Barry	Winslett	CSR	QLD
Bernard	Clifford	Kanmantoo Bluestone	SA
Peter	Colangelo	Tivoli Gardenstone	SA
Malcolm	Macintonsh	MLSA	SA
Mike	Ramsey	Stone Industry Association	SA
Lee	Sapio	Service Youth Council	SA
Paul	Skinner	Stone Industry Association	SA
Chris	Tillett	Tillett Natural Stone Industries	SA
Franz	Wenger	The Marble House of Australia	SA
Rob	Woodward	Adelaide Brighton Cement	SA
Lou		The Marble House of Australia	SA
Graeme	Gilmore	CSR, Constuction materials	TAS
John	Glisson	NGT Tasmania	TAS
Michelle	Harwood	TransTrain	TAS
Jamie	Kent	Duggans Pty Ltd	TAS
Kaye	Richardson	TransTrain	TAS
Amanda	Bowkett	Pilkington Automotive	VIC
Mario	Caneleo	Caroma Industries	VIC
Meg	Collins Hughes	Pilkington Glass	VIC
Santo	Consolino	Associated Personnel Services	VIC
Derek	Dessler	CSR Gyprock	VIC
Neil	Dow	Caroma Industries	VIC
Lubinco	Dzvezdakoski	Caroma Industries	VIC
John	Francis	Johnson Tiles	VIC
Brad	Gething	Pilkington Automotive	VIC

Chris	Hartley	Pilkington Float Glass	VIC
Neil	House	Caroma Industries	VIC
Frank	Hutchinson	Nubrick	VIC
Lee	McNamee	Johnson Tiles	VIC
John	Molenaar	Manufacturing Learning Victoria	VIC
Luke	Murphy	Pilkington Float Glass	VIC
Peter	Nielsen	K & D Bricks & Pavers	VIC
Gillian	Read	Pilkington Float Glass	VIC
Leh	Simonelli		VIC
Gus	Steegstra	Darley Refractories	VIC
Mike	Walton	Refractory and Metallurgical Services Pty Ltd	VIC
Colin	Crocker	Central West College of TAFE	WA
John	Gilbert	Sila Australia	WA
Mark	Grist	Brady's Building Products	WA
Brian	Hovey	Australind Premix	WA
Mike	Jakins	PMITC	WA
Rick	Johnson	BMB Pty Ltd	WA
Ian	McCarthy	ACI	WA
Rob	McConnel		WA
Phil	Mees	Bristile Metro Brick	WA
Brian	Nolan	Bristile Metro Brick	WA
Matt	Parella	Delta Corporation	WA
Dale	Seeto	CSR	WA
Bill	Stubberfield	Boral Resources	WA
John	Symonds	Pioneer Concrete	WA
Colin	Thomas	Bristile Metro Brick	WA
Viney	Treharn	Bristile Metro Brick	WA
John	Valli	BMB Pty Ltd	WA
Jason	Walsh	Delta Corporation	WA
Leslie	Walters	Geraldton Brick	WA

Wendy	Wright	MPA Skills	WA
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Changes resulting from the review

General comments

PMC99 has been extensively reviewed. Most existing operations units have been carried forward. Many support units have been replaced with the equivalent ones from PMA02, so that these two Training Packages now share a greater number of units (PMC has always shared units with PMA). All units have been updated for changes which have occurred since their original drafting. The packaging rules are similar (although the format of the qualifications framework has changed to improve clarity).

Health, safety and environment units have all been rewritten. The original suite of occupational health and safety (OHS) units was always problematic from both an industry alignment and an AQF alignment point of view. The new suite of OHS units better aligns with both the way jobs are done and the AQF. These are easily identified by the PMAOHS code.

The environment units have also been rewritten to better align with the way jobs are done. These are easily identified by the code which is PMASUP#2#.

A new suite of quality units has been introduced to reflect the updated attitudes of the industry to quality. These have the codes PMASUP#0#. They will not necessarily contain the word 'quality' in the title.

Assessment guidelines

PMC04 has adopted the ANTA model assessment guidelines as required. The implementation of these will be similar to the existing assessment guidelines. These model guidelines have been customised by the addition of Section 5 - Assessment in the manufactured mineral products industry.

Qualifications framework

Packaging rules

The packaging rules for Certificates I to IV are similar. Diploma and Advanced Diploma qualifications have been created.

In addition, Certificates in Production Support have been created at AQF 2 and 3. These qualifications are for people working in the industry, but whose job does not require them to be competent in the range of operations competencies required by the existing qualifications. They are required to complete the same core units and the same total number of units, but do not have to select the minimum number of OPS units.

Transition arrangements

People with existing qualifications from PMC99 will still have that qualification recognised.

People who have some units of competency recognised (while not having a full qualification) should have the equivalent unit of competency in PMC04 granted and then be assessed for the relevant qualification under PMC04.

Units of competency

Most units of competency have been carried forward, although there may be changes to the title and code. Most units will have been updated. Many support units of competency have

been replaced by similar ones from PMA02.

Imported units

Wherever possible, existing units of competency from other endorsed Training Packages have been imported to PMC04. These units are reproduced in full, with the original codes of the source Training Package.

The most recent version of all imported units has been used.

Core units in PMC04

Definition of core

Core units are those units which everyone in any sector of the industry must achieve competency in. Hence, the core (from AQF 2) is:

- PMAOPS101B Read dials and indicators OR PMAPROC101B Make measurements
- PMCCOR102A Clean plant and equipment
- PMAOHS100B Follow OHS procedures
- PMASUP100B Apply workplace procedures
- PMASUP110A Relay and respond to information
- PMASUP120A Follow environmental work practices

It should be noted that the core does not contain the 'technical' competencies which are also required, as these vary with sector and job within a sector.

Requirements for a qualification

To obtain a qualification (other than a Certificate in Production Support which is available at AQF 2 and 3 only), competency must also be achieved in a minimum number of OPS units. These are the 'technical' units, but also include within them (both explicitly and implicitly) those 'non-technical' skills which are integral to the performance of that competency (such as communication, risk assessment, problem solving etc). This requires assessment of these supporting competencies in the context of their use.

Core at high levels

There are few additional core units above Certificate II. This is because competencies which may happen to be included in the core at Certificate II have now been integrated into the relevant OPS units which are required. The existing core is still required as:

- they represent the basic level that everyone is expected to function at in things like health and safety, environment, emergency response etc even though many will be operating at levels above this, as reflected in the specific units of competency
- it maximises the commonality of the outcome regardless of the entry point or pathway taken.

Summary

The core units of:

- PMAOPS101B Read dials and indicators OR PMAPROC101B Make measurements
- PMCCOR102A Clean plant and equipment
- PMAOHS100B Follow OHS procedures
- PMASUP100B Apply workplace procedures
- PMASUP120A Follow environmental work practices

underpin the basic level of competency which is frequently exceeded by later units of competency.

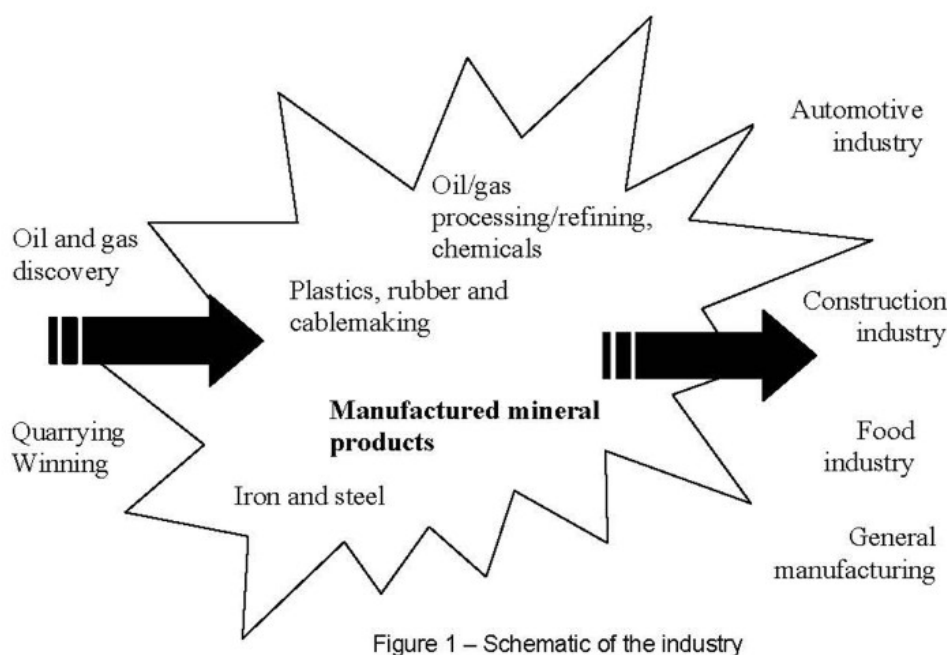
The core unit of PMASUP110A Relay and respond to information is basically redundant at the higher levels as relevant communication is implicitly and/or explicitly included in the relevant OPS units (and other SUP units). It has been retained in the core in recognition of the underlying importance of basic communication skills and to preserve the pattern established in lower qualifications.

Industry coverage

Manufacturing Learning Australia

Manufacturing Learning Australia (MLA) is the national industry training body representing the process manufacturing industries. Its coverage includes the major industry sectors of:

- chemical, hydrocarbons and oil refining (CHO) (ANZSIC classification 12 and 251 to 254) represented by PMA02 Training Package
- iron and steel (ANZSIC classification 271) - currently no Training Package
- manufactured mineral products (MMP) (statistically the non-metallic minerals sector ANZSIC classification 26) represented by PMC04 Training Package
- plastics, rubber and cabling (PR&C) (ANZSIC classifications 255 and 2852) represented by PMB01 Training Package
- laboratory technicians (across all sectors) represented by PML99 Training Package.



The process manufacturing industry

The process manufacturing industries have common boundaries with the extractive industries (Mining and Drilling Training Packages) on the upstream end and the automotive, general manufacturing, building and construction and food and beverage industries on the downstream end (as shown in figure 1). The industry naturally overlaps with the supporting and service industries such as maintenance trades (Metal and Engineering Training Package), administration (Business Services Training Package), sales and marketing (Wholesale and Retail Training Packages) and the professional areas of technical and management support.

In reality, of course, the boundaries are not as neat and tidy as this implies. Companies such as Boral belong in multiple sectors and have a production workforce which spans more than one ITAB.

The three process manufacturing sectors represented by MLA Training Packages in 1998/99

in total employed 117 000 people (all manufacturing 923 400), paid wages and salaries of \$9 524 x 106 (all manufacturing \$35 016 x 106), had a turnover of \$50 309 x 106 (all manufacturing \$220 848 x 106) and added value to the tune of \$19 550 x 106 (all manufacturing \$68 930x106). Its contribution to the economy compares favorably with the manufacturing sector in general with turnover per person being \$7 165 000 (all manufacturing \$239 000) and value added per person being \$1 825 000 (all manufacturing \$75 000). This clearly demonstrates the high productivity, high capital investment and high value to the economy of the process manufacturing industries.

The manufactured mineral products industry

This diverse industry typically interfaces with the extractive industries upstream, although some companies are also involved in the extractive industries. The industry produces a range of products which are typically used by other industries rather than directly consumed by the public. Downstream industries include building and construction (cement, concrete products, glass, clay and ceramic, fibre cement products), civil construction (cement, concrete products, asphalt), food and beverage (glass bottles and jars), heavy industry (refractories), automotive industry (glass) and landscaping industry (concrete blocks and pavers). Parts of the industry do directly service the consumer market such as ceramics (bathroom ware, dinner sets) and concrete products (blocks, pavers, gnomes and bird baths).

The industry has a large and significant 'related products' group (statistically 'not elsewhere classified') . This sector covers a range from making refractory products for use by heavy industry (iron/steel, non-ferrous metals, automotive engines etc), through fibre cement (building products) to abrasives and the manufacture of talcum powder.

Qualifications Framework

The Australian Qualifications Framework

What is the Australian Qualifications Framework?

A brief overview of the Australian Qualifications Framework (AQF) follows. For a full explanation of the AQF see the *AQF Implementation Handbook, 3rd Edition 2002*. You can download it from the Australian Qualifications Advisory Board (AQFAB) website (www.aqf.edu.au) or obtain a hard copy by contacting AQFAB on phone 03 9639 1606 or by emailing AQFAB on aqfab@curriculum.edu.au

The AQF provides a comprehensive, nationally consistent framework for all qualifications in post-compulsory education and training in Australia. In the vocational education and training (VET) sector it assists national consistency for all trainees, learners, employers and providers by enabling national recognition of qualifications and Statements of Attainment.

Training Package qualifications in the VET sector must comply with the titles and guidelines of the AQF. Endorsed Training Packages provide a unique title for each AQF qualification which must always be reproduced accurately.

Qualifications

Training Packages can incorporate the following eight AQF qualifications.

- Certificate I in ...
- Certificate II in ...
- Certificate III in ...
- Certificate IV in ...
- Diploma of ...
- Advanced Diploma of ...
- Vocational Graduate Certificate of ...
- Vocational Graduate Diploma of ...

On completion of the requirements defined in the Training Package, a Registered Training Organisation (RTO) may issue a nationally recognised AQF qualification. Issuance of AQF qualifications must comply with the advice provided in the *AQF Implementation Handbook* and the Australian Quality Training Framework *Standards for Registered Training Organisations*, particularly Standard 10.

Statement of Attainment

Where an AQF qualification is partially achieved through the achievement of one or more endorsed units of competency, an RTO may issue a Statement of Attainment. Issuance of Statements of Attainment must comply with the advice provided in the *AQF Implementation Handbook* and the Australian Quality Training Framework *Standards for Registered Training Organisations*, particularly Standard 10.

Under the *Standards for Registered Training Organisations*, RTOs must recognise the achievement of competencies as recorded on a qualification or Statement of Attainment issued by other RTOs. Given this, recognised competencies can progressively build towards a full AQF qualification.

AQF Guidelines and Learning Outcomes

The *AQF Implementation Handbook* provides a comprehensive guideline for each AQF qualification. A summary of the learning outcome characteristics and their distinguishing features for each VET related AQF qualification is provided below.

Certificate I

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and skills would prepare a person to perform a defined range of activities most of which may be routine and predictable.

Applications may include a variety of employment related skills including preparatory access and participation skills, broad-based induction skills and/or specific workplace skills. They may also include participation in a team or work group.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate knowledge by recall in a narrow range of areas;
- demonstrate basic practical skills, such as the use of relevant tools;
- perform a sequence of routine tasks given clear direction
- receive and pass on messages/information.

Certificate II

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and skills would prepare a person to perform in a range of varied activities or knowledge application where there is a clearly defined range of contexts in which the choice of actions required is usually clear and there is limited complexity in the range of operations to be applied.

Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes.

Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate basic operational knowledge in a moderate range of areas;
- apply a defined range of skills;
- apply known solutions to a limited range of predictable problems;
- perform a range of tasks where choice between a limited range of options is required;
- assess and record information from varied sources;
- take limited responsibility for own outputs in work and learning.

Certificate III

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and competencies would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available.

Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures and within known time constraints.

Applications may involve some responsibility for others. Participation in teams including group or team co-ordination may be involved.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate some relevant theoretical knowledge
- apply a range of well-developed skills
- apply known solutions to a variety of predictable problems
- perform processes that require a range of well-developed skills where some discretion and judgement is required
- interpret available information, using discretion and judgement
- take responsibility for own outputs in work and learning
- take limited responsibility for the output of others.

Certificate IV

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and competencies would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance are involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills.

Applications involve responsibility for, and limited organisation of, others.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate understanding of a broad knowledge base incorporating some theoretical concepts
- apply solutions to a defined range of unpredictable problems
- identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas
- identify, analyse and evaluate information from a variety of sources
- take responsibility for own outputs in relation to specified quality standards
- take limited responsibility for the quantity and quality of the output of others.

Diploma

Characteristics of Learning Outcomes

Breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and co-ordination.

The self directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.

Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team co-ordination may be involved.

The degree of emphasis on breadth as against depth of knowledge and skills may vary between qualifications granted at this level.

Distinguishing Features of Learning Outcomes

Do the competencies or learning outcomes enable an individual with this qualification to:

- demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas
- analyse and plan approaches to technical problems or management requirements
- transfer and apply theoretical concepts and/or technical or creative skills to a range of situations
- evaluate information, using it to forecast for planning or research purposes
- take responsibility for own outputs in relation to broad quantity and quality parameters
- take some responsibility for the achievement of group outcomes.

Advanced Diploma

Characteristics of Learning Outcomes

Breadth, depth and complexity involving analysis, design, planning, execution and evaluation across a range of technical and/or management functions including development of new criteria or applications or knowledge or procedures.

The application of a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of contexts in relation to either varied or highly specific functions. Contribution to the development of a broad plan, budget or strategy is involved and accountability and responsibility for self and others in achieving the outcomes is involved.

Applications involve significant judgement in planning, design, technical or leadership/guidance functions related to products, services, operations or procedures.

The degree of emphasis on breadth as against depth of knowledge and skills may vary between qualifications granted at this level.

Distinguishing Features of Learning Outcomes

Do the competencies or learning outcomes enable an individual with this qualification to:

- demonstrate understanding of specialised knowledge with depth in some areas
- analyse, diagnose, design and execute judgements across a broad range of technical or management functions
- generate ideas through the analysis of information and concepts at an abstract level
- demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills
- demonstrate accountability for personal outputs within broad parameters
- demonstrate accountability for personal and group outcomes within broad parameters.

Qualifications for this sector

In this Training Package, the following qualifications are available:

Certificate I in Manufactured Mineral Products	PMC10104
Certificate II in Manufactured Mineral Products	PMC20104
Certificate II in Production Support	PMC20204
Certificate III in Manufactured Mineral Products	PMC30104
Certificate III in Production Support	PMC30204
Certificate IV in Manufactured Mineral Products	PMC40104
Diploma of Manufactured Mineral Products	PMC50104
Advanced Diploma of Manufactured Mineral Products	PMC60104

The requirements for the awarding of these generic qualifications are listed in the Packaging advice section.

Clusters of competencies which might lead to streamed awards are shown in the section Packaging for a streamed qualification. These clusters have been chosen as they contain that body of knowledge and skills, which is special to that stream and discriminate between it and other streams. If a person wishes to specialise in one particular stream at Certificate II or III,

then additional guidelines apply. The core (which is common to all streams) and the support requirements must also be met. The streamed qualifications have the same code as the generic qualifications and are not separately endorsed qualifications. If you prefer you could consider the clusters as suggested packaging advice.

The streams within Certificates II and III in Manufactured Mineral Products are:

- Cement
- Ceramics
- Clay products
- Concrete products
- Glass
- Premixed concrete.

The generic and streamed qualifications at Certificate II and III are intended for people who are actively involved in producing products. The Production Support Certificates II and III are for production support workers (people working in the industry and filling the vital production support roles, but who may not have the opportunity to develop competence in the units of competency related directly to producing products).

Additional packaging advice is also given in the Packaging for a streamed qualification section for sectors which do not have a streamed qualification. This may be used in much the same manner as advice on which operations units are most likely to be of relevance for organisations in that sector.

Differentiation of qualifications

The qualifications from Certificates I to IV, Diploma and Advanced Diploma are differentiated according to the breadth and depth of knowledge and skills required and the complexity of the contexts in which the knowledge and skills are applied. The Australian Qualifications Framework - Implementation Handbook details the differentiation of all qualification levels. This is summarised on the following page.

It is important to note that the qualification differentiation is based on the knowledge and skills which the person is expected to use in the competency. It is not necessarily related to the level of sophistication or size of the equipment/ process being operated. It should also be noted that the AQF level is not the sole determinant of the value added by that person.

Distinguishing features of qualifications in the AQF

Certificate I	Certificate II	Certificate III	Certificate IV	Diploma	Advanced Dip
Do the competencies enable an individual with this qualification to:	Do the competencies enable an individual with this qualification to:	Do the competencies enable an individual with this qualification to:	Do the competencies enable an individual with this qualification to:	Do the competencies enable an individual with this qualification to:	Do the competencies enable an individual with this qualification to:
demonstrate knowledge by recall in a narrow range of areas	demonstrate basic operational knowledge in a	demonstrate some relevant theoretical knowledge	demonstrate understanding of broad knowledge base	demonstrate understanding of broad knowledge base	demonstrate understanding of specialised knowledge with depth in

	moderate range of areas		incorporating some theoretical concepts	incorporating theoretical concepts, with substantial depth in some areas	some areas
demonstrate basic practical skills such as the use of relevant tools	apply a defined range of skills	apply a range of well developed skills			
	apply known solutions to a limited range of predictable problems	apply known solutions to a variety of predictable problems	apply solutions to a defined range of unpredictable problems	analyse and plan approaches to technical problems or management requirements	analyse, diagnose, design and execute judgements across a broad range of technical or management functions
perform a sequence of routine tasks given clear direction	perform a range of tasks where choice between a limited range of options is required	perform processes that require a range of well developed skills where some discretion and judgement is required	identify and apply skill and knowledge areas to a wide variety of contexts with depth in some areas	transfer and apply theoretical concepts and/or technical or creative skills to a range of situations	demonstrate a command of wide ranging, highly specialised technical, creative or conceptual skills
receive and pass on messages/information	assess and record information from varied sources	interpret available information, using discretion and judgement	identify, analyse and evaluate information from a variety of sources	evaluate information using it to forecast for planning or research purposes	generate ideas through the analysis of information and concepts at an abstract level
	take limited responsibility for own outputs in work and learning	take responsibility for own outputs in work and learning	take responsibility for own outputs in relation to specified quality standards	take responsibility for own outputs in relation to broad quantity and quality parameters	demonstrate accountability for personal outputs within broad parameters

		take limited responsibility for the output of others	take limited responsibility for the quantity and quality of the output of others	take limited responsibility for the achievement of group outcomes	demonstrate accountability for group outcomes within broad parameters
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Endorsed competency standards and the AQF

Nationally endorsed competency standards define the knowledge and skills required in particular industries and occupations. The competencies in this Training Package are categorised into:

- core
- operations
- support.

Core competencies are those which are essential to all sectors of the industry.

Operations competencies are those which relate specifically to the equipment and processes employed by this industry to produce products. It is these competencies which contain the knowledge and skills required to operate the plant at the specified level.

Support competencies are those other competencies required by the industry in order to complete real jobs, but which are not specific to the equipment and processes of this industry and do not contain significant industry specific knowledge or skills.

The qualifications available through this Training Package:

- are based on the endorsed competency standards for this industry sector
- use a range of competencies from other endorsed competency standards.

Indicative competencies are listed from these other endorsed standards in the Other suggested imported units section. Suitable, relevant endorsed competencies may be substituted for those indicated in this qualifications framework. The qualification will still be awarded provided the guidelines given under Packaging advice are met.

Other suggested imported units

A range of imported units of competency has been listed in the tables included in the Packaging advice. These units are reproduced in full in the competency standards forming part of this Training Package.

Relevant units of competency may be imported from any endorsed set of competency standards (see Customising advice for details). This is necessary to meet the range of possible requirements from this very diverse industry. The list below lists some of the units of competency which might be more commonly imported. Details may be accessed from the relevant national ITAB or from the NTIS (<http://www.ntis.gov.au/>). This list is included as an aid to finding relevant units to import and in no way restricts the possible range of imported units.

These units would be imported as ' support' units and may be used to contribute to the requirements of a qualification under this Training Package.

This list may also be used as a preliminary evaluation of the relevance of a new entrant holding a qualification from these areas.

Laboratory Operations Training Package PML 99

PMLDATA300A Process and record data

PMLMAIN300A Maintain the laboratory fit for purpose

PMLSAMP300A Handle and transport samples

PMLTEST302A Calibrate test equipment and assist with its maintenance

PMLSAMP400A Obtain representative samples in accordance with a sampling plan

PMLTEST400A Perform instrumental tests/procedures

PMLDATA500A Analyse data and report results

PMLTEST500A Calibrate and maintain instruments

Metal and Engineering Training Package MEM 98

MEM2.14C5A Use graphical techniques and perform simple statistical computations

MEM3.1A Manual production assembly

MEM3.2A Precision assembly

MEM10.6A* Install machine/plant

MEM10.8B Undertake commissioning procedures for plant and/or equipment

MEM11.1A Erect/dismantle scaffolding and equipment

MEM11.4A Undertake dogging/crane chasing

MEM11.10A Operate load shifting equipment

MEM11.22A Operate fixed/movable load shifting equipment

MEM15.8B A Perform advanced statistical quality control

* Units which can only be used in qualifications at Certificate III and above.

Frontline Management

BSBFLM302A Support leadership in the workplace

BSBFLM303A Contribute to effective workplace relationships

BSBFLM304A Participate in work teams

BSBFLM305A Support operational plan

BSBFLM306A Provide workplace information and resourcing plans

BSBFLM309A Support continuous improvement systems and processes

BSBFLM311A Support a workplace learning environment

BSBFLM402A Show leadership in the workplace

BSBFLM403A Manage effective workplace relationships

BSBFLM404A Lead work teams

BSBFLM405A Implement operational plan

BSBFLM406A Implement workplace information system

BSBFLM409A Implement continuous improvement

BSBFLM501A Manage personal work priorities and professional development

BSBFLM502A Provide leadership in the workplace

BSBFLM503A Establish effective workplace relationships
BSBFLM504A Facilitate work teams
BSBFLM505A Manage operational plan
BSBFLM506A Manage workplace information systems
BSBFLM507A Manage quality customer service
BSBFLM509A Promote continuous improvement
BSBFLM510A Facilitate and capitalise on change and innovation
BSBFLM511A Develop a workplace learning environment

Transport and distribution

TDTA1297A Pick and process orders
TDTA1697A Use inventory systems to organise stock control
TDTA2297A Participate in stocktakes

Textiles, clothing and footwear

LMTQAGN02A Coordinate external quality assurance
LMTQAGN03A Manage quality system and procedures
LMTMTGN01A Prepare procedures and specifications
LMTMTGN02A Develop and implement policies and procedures

National Public Services

PSPPROC401A Plan procurement
PSPMNGT601A Facilitate workforce effectiveness
PSPMNGT602A Manage resources
PSPMNGT603A Facilitate people management
PSPMNGT604A Manage change
PSPMNGT605A Manage diversity
PSPMNGT606A Manage the delivery of quality client service
PSPMNGT607A Develop a business case
PSPMNGT608A Manage risk
PSPMNGT609A Formulate business strategies
PSPMNGT701A Provide strategic direction
PSPPM401A Develop a project
PSPPM402A Implement projects
PSPPM403A Close projects
PSPPM501A Initiate projects
PSPPM503A Finalise projects
PSPPM601A Direct project activities
PSPPROC40 A Request and receive offers

PSPPROC403A Award contracts

PSPPROC404A Manage contracts

First aid

PMAOHS220A Provide initial first aid response

PMAOHS221A Maintain first aid supplies and records

PMAOHS320A Provide advanced first aid response

PMAOHS321A Provide first aid response in remote and/or isolated area

PMAOHS420A Develop first aid procedures and manage resources

Innovation competency standards

Units of competency in innovation have been developed and noted by ANTA. They are:

ICS1 Contribute to workplace improvements

ICS2 Share ideas in the workplace

ICS3 Develop innovative ideas at work

ICS4 Originate and develop a concept

ICS5 Lead a team to foster innovation

ICS6 Create an innovative work environment

ICS7 Set up systems that support innovation.

Capacity for implementation of PMC04 in schools

Introduction

Schools who are considering implementing a Training Package need to be aware that Training Packages are, by ANTA mandate, based on units of competency, which by definition contain descriptors of outcomes to be achieved and criteria for performance required for a person to operate effectively in the workplace. This then sets the flavour of any Training Package and immediately raises issues about school based implementation. This is different to say the New Zealand system where their unit standards specify learning outcomes, and so are more amenable to implementation in a school based environment.

Given this background, assessment of the capacity for implementation in schools must start with an examination of the units of competency and their ability to be assessed (and to a lesser extent delivered) in a school environment.

Structure of PMC04 qualifications

PMC04 has six qualifications, these being Certificates I in Advanced Diploma in Manufactured Mineral Products. The structure of each qualification is similar in that they require:

- competency in all core units
- competency in a minimum number of 'operations' units
- competency in a minimum total number of units.

The ability to assess the core and operations units will determine the ability of the school system to deliver full qualifications. The ability to assess any unit will determine the ability of the school system to deliver statements of attainment. This will be determined by both the

requirements of the assessment guidelines and also the assessment method and context statement in the individual units of competency, as well as the requirements of the elements and performance criteria.

The Certificate I requires competency in:

- all 3 core units
- at least 1 of 2 operations units
- a minimum of 8 units in total from the 3 core, 2 operations and 7 support units.

The Certificate II requires competency in:

- all 6 core units
- at least 2 of 33 operations units
- a minimum of 15 units in total from the 6 core, 33 operations and 21 support units.

The operations units are likely to pose the biggest challenge for the school sector as these are related to the operation of plant, which it is unlikely that the schools would have or would wish to acquire. However they may be able to do this in partnership with a local company. In some sectors of the industry, this may be a practical solution. In other sectors it is less likely that the local companies will be prepared to have school students working in their workplace as they have a distinct preference for mature workers due to the OHS issues.

It is necessary therefore to examine the individual units/groups of units and consider the required assessment.

Certificates III and IV are not examined as part of this report as they are likely to be less relevant to school based delivery.

Certificate I

There are three core units in Certificate I:

Units	Required assessment
PMASUP110A Relay and respond to information	Could easily be assessed off plant
PMCCOR102A Clean plant and equipment	Difficult to assess off plant
PMAOHS100B Follow OHS procedures	Possible to assess of plant

There are two operations units in Certificate I:

Units	Required assessment
PMCOPS103B Operate equipment	Needs to be assessed on plant
PMAOPS101B Read dials and indicators OR PMAPROC101B Make measurements	Possible to assess off plant

There are seven support units in Certificate I:

Units	Required assessment
PMCSUP170B Shift materials safely	Requires practical assessment, but need not be on plant

PMCSUP171B Pack finished products	Difficult to assess off plant
PMCSUP172B Store materials for production	Difficult to assess off plant
PMCSUP180A Organise self	Preferably assessed on plant
PMCSUP181A Work in a team	Preferably assessed on plant
PMASUP100B Apply workplace procedures	Difficult to assess off plant
PMASUP120A Follow environmental work practices	Difficult to assess off plant

It would be difficult for a school to deliver the Certificate I unless they were in partnership with a local company. This is due to the requirements to demonstrate competency which it is difficult to do outside of a workplace.

Certificate II

There are 6 core units in Certificate II:

Units	Required assessment
PMASUP110A Relay and respond to information	Could easily be assessed off plant
PMCCOR102A Clean plant and equipment	Difficult to assess off plant
PMAOHS100B Follow OHS procedures	Possible to assess off plant
PMAOPS101B Read dials and indicator OR PMAPROC101B Make measurements s	Possible to assess off plant
PMASUP120A Follow environmental work practices	Difficult to assess off plant
PMASUP100B Apply workplace procedures	Difficult to assess off plant

There are 38 operations units in Certificate II:

Units	Required assessment
PMCOPS201B Operate a unit of equipment	Needs to be assessed on plant
PMCOPS202B Operate equipment to blend/mix materials	Needs to be assessed on plant
PMCOPS203B Operate grinding equipment	Needs to be assessed on plant
PMCOPS204B Prepare for production	Needs to be assessed on plant
PMCOPS205B Process greenware/green products	Needs to be assessed on plant
PMCOPS206B Operate an autoclave	Needs to be assessed on plant
PMCOPS207A Heat accelerate the curing of precast concrete	Needs to be assessed on plant

PMCOPS208A Operate crushing equipment	Needs to be assessed on plant
PMCOPS210B Operate a Calcining kiln	Needs to be assessed on plant
PMCOPS220B Operate slip casting equipment	Needs to be assessed on plant
PMCOPS221B Operate manual glazing equipment	Needs to be assessed on plant
PMCOPS222B Prepare raw materials for clay and ceramic production	Needs to be assessed on plant
PMCOPS223B Finish products after firing	Needs to be assessed on plant
PMCOPS224B Hand mould products	Needs to be assessed on plant
PMCOPS230B Operate a firing kiln	Needs to be assessed on plant
PMCOPS231B Operate extrusion equipment	Needs to be assessed on plant
PMCOPS232B Operate pressing equipment	Needs to be assessed on plant
PMCOPS240B Operate melting process	Needs to be assessed on plant
PMCOPS241B Operate process ovens	Needs to be assessed on plant
PMCOPS242B Operate blown insulation equipment	Needs to be assessed on plant
PMCOPS243B Operate float forming equipment	Needs to be assessed on plant
PMCOPS244B Operate fibre forming equipment	Needs to be assessed on plant
PMCOPS245B Operate container forming equipment	Needs to be assessed on plant
PMCOPS246B Operate printing and edgework equipment	Needs to be assessed on plant
PMCOPS247B Operate primary annealing equipment	Needs to be assessed on plant
PMCOPS248B Operate glass finishing equipment	Needs to be assessed on plant
PMCOPS249B Operate on line stacking and assembly equipment	Needs to be assessed on plant
PMCOPS250B Schedule, cut and bend reinforcement	Needs to be assessed on plant
PMCOPS251B Finish green concrete products	Needs to be assessed on plant
PMCOPS252B Cast moulded concrete	Needs to be assessed on plant

products	
PMCOPS253B Finish cured concrete products	Needs to be assessed on plant
PMCOPS254B Spin concrete pipes	Needs to be assessed on plant
PMCOPS255B Conduct benching operations	Needs to be assessed on plant
PMCOPS256A Assemble, fabricate and place reinforcement	Needs to be assessed on plant
PMCOPS257A Finish casting operation	Needs to be assessed on plant
PMCOPS258A Demould concrete products	Needs to be assessed on plant
PMCOPS260B Batch mix concrete	Needs to be assessed on plant
PMCOPS261B Deliver concrete to site	Needs to be assessed on job. Requires heavy truck licence

There are 27 support units in Certificate II:

Units	Required assessment
PMCSUP170B Shift materials safely	Requires practical assessment, but need not be on plant
PMCSUP171B Pack finished products	Difficult to assess off plant
PMCSUP172B Store materials for production	Difficult to assess off plant
PMCSUP180A Organise self	Preferably assessed on plant
PMCSUP181A Work in a team	Preferably assessed on plant
PMASUP100B Apply workplace procedures	Difficult to assess off plant
PMASUP120A Follow environmental work practices	Difficult to assess off plant
PMAOHS200B Participate in workplace OHS procedures	Difficult to assess off plant
PMASUP200B Implement production efficiencies	Preferably assessed on plant
PMASUP210A Process and record information	Possible to assess off plant
PMASUP220A Monitor and control environmental hazards	Possible to assess off plant
PMCSUP270A Move materials	Possible to assess off plant, but not in school
PMCSUP271B Operate bulk materials handling equipment	Needs to be assessed on plant

PMCSUP272A Identify and act upon hazards in the workplace	Possible to assess off plant
PMCSUP273A Receive and despatch materials	Difficult to assess off plant
PMCSUP274B Undertake minor maintenance	Preferably assessed on plant
PMCSUP275A Maintain kiln refractory	Needs to be assessed on plant
PMCSUP280A Manage conflict at work	Easily assessed off plant
PMCSUP281A Deliver customer service	Possible to assess of plant
PMCSUP282A Use computers and related programs in the workplace	Easily assessed off plant
PMCSUP283B Allocate and complete team tasks	Preferably assessed on plant
PMCSUP292A Sample and test materials and product	Easily assessed off plant
PMAPER200C Work in accordance with an issued permit	Possible to assess of plant
PMAPER201C Monitor and control work permits	Possible to assess of plant
PMAPER205B Enter confined space	Possible to assess of plant
TDTD1097B Operate a forklift	Possible to assess off plant
TDTC497C Driving heavy rigid vehicles	Requires heavy vehicle licence

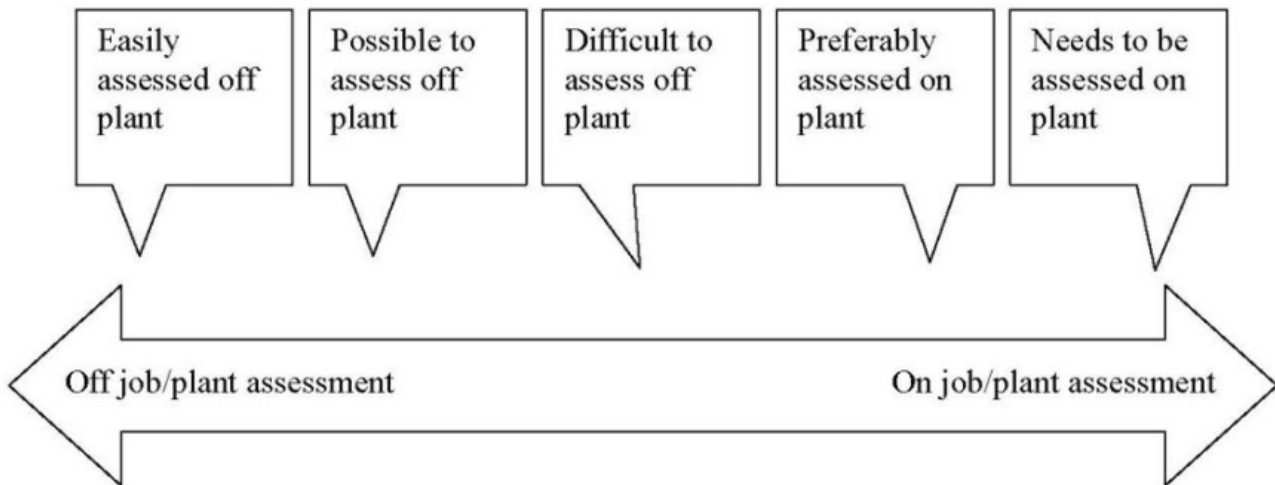
It would be difficult for a school to deliver the Certificate II unless they were in partnership with a local company. This is due to the requirements to demonstrate competency which it is difficult to do outside of a workplace.

Conclusion

Schools should be able to deliver, assess and award statements of attainment in certain units of competency if they choose carefully. Due to the requirements to demonstrate competency, and in particular competency in sufficient operations units, it would be difficult for a school to assess and award qualifications within PMC04 if not in partnership with a company. They may be able to achieve this by partnering with a local company, where companies are prepared to do this and their duty of care under OHS allows it.

The addition of 'production support' qualifications into PMC04 should change this situation for the production support qualifications, but will not change it for operations qualifications.

Spectrum gradations used



Note regarding frontline management

The frontline management units of competency and qualifications are now included within the Business Services Training Package. Some frontline management units of competency have been imported into this Training Package. At the time of publishing the frontline management suite of units comprises:

- BSBCM302A Organise personal work priorities and development
- BSBCM310A Deliver and monitor a service to customers
- BSBCM311A Maintain workplace safety
- BSBCM312A Support innovation and change
- BSBCM402A Develop work priorities
- BSBCM404A Develop teams and individuals
- BSBCM410A Coordinate implementation of customer service strategies
- BSBCM411A Monitor a safe workplace
- BSBCM412A Promote innovation and change
- BSBFLM302A Support leadership in the workplace
- BSBFLM303A Contribute to effective workplace relationships
- BSBFLM304A Participate in work teams
- BSBFLM305A Support operational plan
- BSBFLM306A Provide workplace information and resourcing plans
- BSBFLM309A Support continuous improvement systems and processes
- BSBFLM311A Support a workplace learning environment
- BSBFLM402A Show leadership in the workplace
- BSBFLM403A Manage effective workplace relationships
- BSBFLM404A Lead work teams
- BSBFLM405A Implement operational plan
- BSBFLM406A Implement workplace information system
- BSBFLM409A Implement continuous improvement

BSBFLM501A Manage personal work priorities and professional development
BSBFLM502A Provide leadership in the workplace
BSBFLM503A Establish effective workplace relationships
BSBFLM504A Facilitate work teams
BSBFLM505A Manage operational plan
BSBFLM506A Manage workplace information systems
BSBFLM507A Manage quality customer service
BSBFLM509A Promote continuous improvement
BSBFLM510A Facilitate and capitalise on change and innovation
BSBFLM511A Develop a workplace learning environment
BSBMGT505A Ensure a safe workplace

Packaging for a streamed qualification

This Training Package provides for a number of qualifications streamed by industry sector within the qualifications specified in the previous section. The requirements for a streamed qualification are contained in this section. Streaming is only provided for Certificates II and III. If the streamed qualifications do not totally meet your requirements, then the generic qualification as described in Packaging advice, and possibly the Customising advice, need to be used.

This section summarises typical operations competencies which an operator will choose to obtain a streamed Certificate II and/or III. This list should be taken as indicative only of job requirements and should not preclude the use of any other relevant unit of competency. While most jobs fit neatly within a stream, some will legitimately fall across a number of typical streams and some will fall outside any typical stream. Nothing in this section should limit the application of the Packaging advice.

Note that all the requirements of the Packaging advice, also apply here. This section in no way increases or decreases the number of core units, operations units or the total number of units needed for a qualification. It does however restrict the choice of operations units for a streamed qualification by requiring particular operations units to be chosen.

The Certificate I, Certificate IV, Diploma and Advanced Diploma are not available as streamed qualifications. See Packaging advice for details.

Note that a streamed qualification cannot change the title of the qualification, although RTOs may choose to recognise this on the testamur in ways other than a change to the title of the qualification. RTOs must be compliant with the AQTF requirements. The qualification or statement of attainment should clearly specify the competency units achieved and, where appropriate, the stream.

Certificate II in Manufactured Mineral Products (Cement)

Choose this unit:

PMCOPS210B Operate a Calcining kiln

and then at least one of:

PMCOPS201B Operate a unit of equipment

PMCOPS202B Operate equipment to blend/mix materials

PMCOPS203B Operate grinding equipment

PMCOPS204B Prepare for production

Certificate III in Manufactured Mineral Products (Cement)

Choose this unit:

PMCOPS310B Process raw meal into product

Certificate II in Manufactured Mineral Products (Ceramics)

Choose at least one unit from:

PMCOPS220B Operate slip casting equipment

PMCOPS221B Operate manual glazing equipment

PMCOPS222B Prepare raw materials for clay and ceramic production

PMCOPS223B Finish products after firing

PMCOPS224B Hand mould products

PMCOPS230B Operate a firing kiln

PMCOPS231B Operate extrusion equipment

PMCOPS232B Operate pressing equipment

and you may also choose from:

PMCOPS201B Operate a unit of equipment

PMCOPS202B Operate equipment to blend/mix materials

PMCOPS203B Operate grinding equipment

PMCOPS204B Prepare for production

PMCOPS205B Process greenware/green products

PMCOPS206B Operate an autoclave

Certificate III in Manufactured Mineral Products (Ceramics)

Choose at least one unit from:

PMCOPS320B Design and prepare models, moulds and dies

PMCOPS321B Set up and tune glazing equipment

Certificate II in Manufactured Mineral Products (Clay Products)

Choose at least one unit from:

PMCOPS230B Operate a firing kiln

PMCOPS231B Operate extrusion equipment

PMCOPS232B Operate pressing equipment

PMCOPS221B Operate manual glazing equipment

PMCOPS222B Prepare raw materials for clay and ceramic production

and you may also choose from:

PMCOPS201B Operate a unit of equipment

PMCOPS202B Operate equipment to blend/mix materials

PMCOPS203B Operate grinding equipment

PMCOPS204B Prepare for production

PMCOPS205B Process greenware/green products

Certificate III in Manufactured Mineral Products (Clay Products)

Choose this unit:

PMCOPS300B Set up and tune a process

with the prerequisites chosen from the list above.

Certificate II in Manufactured Mineral Products (Concrete Products)

Choose at least one unit from:

PMCOPS250B Schedule, cut and bend reinforcement

PMCOPS251B Finish green concrete products

PMCOPS252B Cast moulded concrete products

PMCOPS253B Finish cured concrete products

PMCOPS254B Spin concrete pipes

PMCOPS255B Conduct benching operations

PMCOPS256A Assemble, fabricate and place reinforcement

PMCOPS257A Finish casting operation

PMCOPS258A Demould concrete products

PMCOPS260B Batch mix concrete

PMCOPS231B Operate extrusion equipment

PMCOPS232B Operate pressing equipment

PMCOPS221B Operate manual glazing equipment

and you may also choose from:

PMCOPS201B Operate a unit of equipment

PMCOPS204B Prepare for production

PMCOPS205B Process greenware/green products

Certificate III in Manufactured Mineral Products (Concrete Products)

Choose at least one unit from:

PMCOPS350B Produce architectural precast concrete

PMCOPS351A Produce structural precast concrete

Certificate II in Manufactured Mineral Products (Glass)

Choose at least one unit from:

PMCOPS240B Operate melting process

PMCOPS241B Operate process ovens

PMCOPS242B Operate blown insulation equipment

PMCOPS243B Operate float forming equipment

PMCOPS244B Operate fibre forming equipment

PMCOPS245B Operate container forming equipment

PMCOPS246B Operate glass printing equipment

PMCOPS247B Operate primary annealing equipment

PMCOPS248B Operate glass finishing equipment

PMCOPS249B Operate on line stacking and assembly equipment

and you may also choose from:

PMCOPS201B Operate a unit of equipment

PMCOPS202B Operate equipment to blend/mix materials

PMCOPS203B Operate grinding equipment

PMCOPS204B Prepare for production

PMCOPS206B Operate an autoclave

Certificate III in Manufactured Mineral Products (Glass)

Choose at least one unit from:

PMCOPS340B Set up and optimise glass forming process

PMCOPS341B Set up and optimise glass furnace processes

PMCOPS342B Set up and optimise secondary process

Certificate II in Manufactured Mineral Products (Premixed Concrete)

Choose at least one unit from:

PMCOPS260B Batch mix concrete

PMCOPS261B Deliver concrete to site

and you may also choose from:

PMCOPS201B Operate a unit of equipment

PMCOPS204B Prepare for production

Certificate III in Manufactured Mineral Products (Premixed Concrete)

Choose this unit:

PMCOPS300B Set up and tune a process

with the prerequisites chosen from the list above.

Suggested packaging for other sectors

The asphalt sector should choose from:

PMCOPS265A Prepare asphalt

The plaster sector should choose from:

PMCOPS270A Operate forming equipment

PMCOPS271A Operate wet and dry end equipment

The fibre cement sector should choose from:

PMCOPS380A Set up and optimise finishing process

The refractory sector should choose:

PMCOPS290A Use and maintain tools and equipment for refractory operations

PMCOPS291A Prepare for, install and repair refractory brickwork/blockwork

PMCOPS292A Prepare for and install mouldable refractory materials

PMCOPS293A Prepare for and cast refractory materials

PMCOPS294A Prepare for and apply shotcrete for installation

and may also choose:

PMCOPS295A Prepare for, install and repair ceramic fibre

PMCSUP275A Maintain kiln refractory

For Certificate III the refractories sector should choose:

PMCOPS390A Test refractory materials

Customisation and Contextualisation Guidelines

Customisation

Customising of qualifications under this Training Package may be done by:

choosing from the units provided in this Training Package to suit the particular situation (see Packaging advice)

specifying particular combinations of units provided in this Training Package to suit the combination of skills required in the workplace

importing suitable units from another set of endorsed competency standards and replacing some of the 'support' units in this Training Package. This substitution is limited by the rules below.

Note that substitution of 'core' or 'operations' units is not permitted.

We welcome and encourage the export of these units to other Training Packages provided the rules below are observed.

Contextualisation

Contextualisation of competency units under this Training Package may be done by:

Contextualising the units provided in this Training Package according to the contextualisation rules to better suit a particular situation (see below).

Specifying combinations of units

Individual competency units in this Training Package will specify prerequisite and corequisite competencies which may be required. Individual enterprises may find it appropriate to specify additional prerequisite and/or corequisite competencies because of the requirements of their particular process. This is permitted, and will change the way in which the units are packaged for the qualification, but in no way increases or decreases the total number of units required for the awarding of a qualification, and must still comply with the overall requirements of Packaging advice.

An example of where this may be desirable is a company where applying finishes to concrete and polishing it is part of the one job. The company may wish to specify as corequisite units:

PMCOPS251A Finish green concrete products

PMCOPS253A Finish cured concrete products.

Contextualising competency units

Contextualisation rules

Competency units may be contextualised. Contextualisation which:

replaces general directions with enterprise specific needs

replaces generic equipment/process names with enterprise specific names

replaces general processes/specifications with enterprise specific needs

is allowed and encouraged, provided the contextualised unit is of similar level and rigour to the original competency unit.

Note that contextualising cannot be used to generate an additional competency which is closely related to an existing competency. Contextualisation may be used to place enterprise specific information in the unit of competency, but not if this results in the use of two similar units in the one qualification.

Contextualisation may only be done if it does not significantly change the level and rigour or change the range of applicability of the unit. Contextualisation may be done within the range of variables and the evidence guide. Note also that contextualisation of the elements or performance criteria is not permitted. As a minimum, the contextualised unit should:

be of similar level and rigour

be of a similar breadth, complexity and size

be relevant to the industry and the enterprise

not reduce the health, safety or environmental requirements

retain the original ANTA code number.

Contextualising 'operations' units

Operations units may not be substituted with other units.

Operations units may be contextualised within the bounds specified above in this section.

Two operations units:

PMCOPS201B Operate a unit of equipment

PMCOPS300B Set up and tune a process

are intended to be used primarily in a contextualised form. These two units apply to situations where no other OPS unit in the Training Package is deemed to be appropriate. OPS 200 and OPS 300 should be contextualised to suit individual situations, within the general contextualising rules of this section. Note that contextualising cannot be used to generate an additional competency which is closely related to an existing competency. Contextualisation can only be used to generate an alternative competency for qualification purposes.

New units

Where there is no suitable equivalent unit of competency in any national competency standards that can be used or contextualised to the enterprise's requirements, new units may be developed and submitted to ANTA via Manufacturing Learning Australia for endorsement and inclusion in the Training Package. MLA will treat the proposed new unit as a 'category 2' change under the ANTA continuous improvement guidelines. All units of competency within Training Packages must be endorsed by the National Training Quality Committee and listed on the National Training Information Service.

Importing competencies from other Training Packages

This Training Package contains a number of units of competency which have been imported from another Training Package (any unit whose code does not commence with PMC has been imported). These units of competency may be treated as if they were PMC units from the point of view of qualifications and are included within the scope of registration for RTOs

whose scope covers this Training Package.

Additional competency units may be imported from another set of endorsed competency standards to customise a qualification. These imported units may be used to replace the maximum number of 'support' units only. The use of imported units is allowed if:

they are from a set of endorsed competency standards (the original ANTA code number must be retained)

they are appropriate to the needs of the enterprise

they correspond to an equivalent AQF level qualification

any prerequisites and corequisites specified in the original set of competency standards are also observed

AND provided no more replacement units are used than the allowable number of support units. Core and operations units may not be substituted (however, see Contextualising operations units above).

The following are examples of acceptable and unacceptable substitutions.

Kim wishes to incorporate the unit 'Operational maintenance of machines/equipment' (from the National Metal and Engineering standards) into Certificate II instead of one of the support units. This is an acceptable substitution. Note that this unit has a prerequisite of 'Use hand tools' which must also be met, and so this actually counts as a substitution of TWO units.

Pat wishes to substitute the unit 'Participate in stocktakes' (from the Transport and Distribution standards) instead of one of the operations units. It is NOT acceptable to substitute operations units. However, if Pat were to substitute for a support unit, rather than an operations unit, it would be acceptable.

Leslie wishes to substitute 'Operational maintenance of machines/equipment', 'Participate in stocktakes', 'Draw and interpret sketch' and 'Use hand tools' (both from National Metal and Engineering) and 'Replenish stock' (from Transport and Distribution) for five support units in the Certificate I. This is NOT acceptable as there are only four support units in Certificate I. It should also be noted that it is NOT advisable to substitute units at AQF 2 into Certificate I.

Exporting competencies to other Training Packages

Manufacturing Learning Australia encourages other industries and ITABs to access the units of competency in this Training Package which might be appropriate to their needs. These competencies may be used provided:

the original ANTA code number is retained

they are only contextualised to the extent permitted by ANTA and as above

any specified prerequisites and corequisites are observed

Manufacturing Learning Australia is advised of the specific competencies to be used to facilitate ongoing communication in the event of an update.

Other suggested imported units

A range of imported units of competency has been listed in the tables included in the Packaging advice. These units are reproduced in full in the competency standards forming part of this Training Package.

Relevant units of competency may be imported from any endorsed set of competency standards (see Customising advice for details). This is necessary to meet the range of possible requirements from this very diverse industry. The list below lists some of the units of competency which might be more commonly imported. Details may be accessed from the

relevant national ITAB or from the NTIS (<http://www.ntis.gov.au/>). This list is included as an aid to finding relevant units to import and in no way restricts the possible range of imported units.

These units would be imported as 'support' units and may be used to contribute to the requirements of a qualification under this Training Package.

This list may also be used as a preliminary evaluation of the relevance of a new entrant holding a qualification from these areas.

Laboratory Operations Training Package PML 99

PMLDATA300A Process and record data

PMLMAIN300A Maintain the laboratory fit for purpose

PMLSAMP300A Handle and transport samples

PMLTEST302A Calibrate test equipment and assist with its maintenance

PMLSAMP400A Obtain representative samples in accordance with a sampling plan

PMLTEST400A Perform instrumental tests/procedures

PMLDATA500A Analyse data and report results

PMLTEST500A Calibrate and maintain instruments

Metal and Engineering Training Package MEM 98

MEM2.14C5A Use graphical techniques and perform simple statistical computations

MEM3.1A Manual production assembly

MEM3.2A Precision assembly

MEM10.6A* Install machine/plant

MEM10.8B Undertake commissioning procedures for plant and/or equipment

MEM11.1A Erect/dismantle scaffolding and equipment

MEM11.4A Undertake dogging/crane chasing

MEM11.10A Operate load shifting equipment

MEM11.22A Operate fixed/movable load shifting equipment

MEM15.8B A Perform advanced statistical quality control

* Units which can only be used in qualifications at Certificate III and above.

Frontline Management

BSBFLM302A Support leadership in the workplace

BSBFLM303A Contribute to effective workplace relationships

BSBFLM304A Participate in work teams

BSBFLM305A Support operational plan

BSBFLM306A Provide workplace information and resourcing plans

BSBFLM309A Support continuous improvement systems and processes

BSBFLM311A Support a workplace learning environment

BSBFLM402A Show leadership in the workplace

BSBFLM403A Manage effective workplace relationships

BSBFLM404A Lead work teams

BSBFLM405A Implement operational plan

BSBFLM406A Implement workplace information system

BSBFLM409A Implement continuous improvement

BSBFLM501A Manage personal work priorities and professional development

BSBFLM502A Provide leadership in the workplace

BSBFLM503A Establish effective workplace relationships

BSBFLM504A Facilitate work teams

BSBFLM505A Manage operational plan

BSBFLM506A Manage workplace information systems

BSBFLM507A Manage quality customer service

BSBFLM509A Promote continuous improvement

BSBFLM510A Facilitate and capitalise on change and innovation

BSBFLM511A Develop a workplace learning environment

Transport and distribution

TDTA1297A Pick and process orders

TDTA1697A Use inventory systems to organise stock control

TDTA2297A Participate in stocktakes

Textiles, clothing and footwear

LMTQAGN02A Coordinate external quality assurance

LMTQAGN03A Manage quality system and procedures

LMTMTGN01A Prepare procedures and specifications

LMTMTGN02A Develop and implement policies and procedures

National Public Services

PSPPROC401A Plan procurement

PSPMNGT601A Facilitate workforce effectiveness

PSPMNGT602A Manage resources

PSPMNGT603A Facilitate people management

PSPMNGT604A Manage change

PSPMNGT605A Manage diversity

PSPMNGT606A Manage the delivery of quality client service

PSPMNGT607A Develop a business case

PSPMNGT608A Manage risk

PSPMNGT609A Formulate business strategies

PSPMNGT701A Provide strategic direction

PSPPM401A Develop a project

PSPPM402A Implement projects

PSPPM403A Close projects

PSPPM501A Initiate projects

PSPPM503A Finalise projects

PSPPM601A Direct project activities

PSPPROC402A Request and receive offers

PSPPROC403A Award contracts

PSPPROC404A Manage contracts

First aid

PMAOHS220A Provide initial first aid response

PMAOHS221A Maintain first aid supplies and records

PMAOHS320A Provide advanced first aid response

PMAOHS321A Provide first aid response in remote and/or isolated area

PMAOHS420A Develop first aid procedures and manage resources

Innovation competency standards

Units of competency in innovation have been developed and noted by ANTA. They are:

ICS1 Contribute to workplace improvements

ICS2 Share ideas in the workplace

ICS3 Develop innovative ideas at work

ICS4 Originate and develop a concept

ICS5 Lead a team to foster innovation

ICS6 Create an innovative work environment

ICS7 Set up systems that support innovation.

Qualifications

PMC10104 Certificate I in Manufactured Mineral Products

There is no streamed qualification in Certificate I.

Qualification Requirements

Note - The following qualification details may be a duplicate of the information above due to the current method of coding packaging rules for the latest release of NTIS (National Training Information Service).

To achieve a Certificate I in Manufactured Mineral Products:

- 8 Units

- 3 Core Units

Core (refer to the unit list at the end of this section)

- and between 1 and 3 Operations units where a

- between 0 and 2 units from the following group

- Operations

Operations (refer to the unit list at the end of this section)

- and 1 of either

- PMAOPS101B Read dials and indicators

- or PMAPROC101B Make measurements

- and between 2 and 4 units from the following group

- Support Units

Support (refer to the unit list at the end of this section)

- Note: Up to 4 Support Units maybe imported from other Training Packages

CORE UNITS

Core

Code	Title
PMAOHS100B	Follow OHS procedures
PMASUP110A	Relay and respond to information
PMCCOR102A	Clean plant and equipment

ELECTIVE UNITS

Operations

Code	Title
PMAOPS105B	Select and prepare materials
PMCOPS103B	Operate equipment

Support

Code	Title
PMAOHS110B	Respond to emergency situation
PMASUP100B	Apply workplace procedures
PMASUP120A	Follow environmental work practices
PMASUP130B	Follow established work plan
PMCSUP170B	Shift materials safely
PMCSUP171B	Pack finished products
PMCSUP172B	Store materials for production
PMCSUP180A	Organise self
PMCSUP181A	Work in a team

Elective Units referenced in the Packaging Rules

Code	Title
PMAOPS101B	Read dials and indicators
PMAPROC101B	Make measurements

PMC20104 Certificate II in Manufactured Mineral Products

Core units are to be from the core list below. The operations units at the required level are to be chosen from the operations list below. In addition to the elective support units listed below, it may be appropriate to include operations units from the previous level as elective units. Up to 7 support units may be imported from other Training Packages.

If a person seeks a second qualification at this certificate level using this Training Package a different set of operations units must be chosen.

Holders of a Certificate I in Manufactured Mineral Products will need an additional 7 units of competency to those already recognised by the Certificate I. These additional 7 units of competency must be chosen so that the total units, including those carried forward from a lower level qualification, comply with the above rules.

NOTES

- 1 Requirements for a streamed Certificate II are listed in Packaging for a streamed qualification. This information can be found in the Qualifications Framework
- 2 The customisation rules of Customising advice may also need to be consulted. This information can be found in the Qualifications Framework

Qualification Requirements

Note - The following qualification details may be a duplicate of the information above due to the current method of coding packaging rules for the latest release of NTIS (National Training Information Service).

To achieve a Certificate II in Manufactured Mineral Products:

- 15 Units:

- 6 Core units where:

- 5 units are from the Core group

Core (refer to the unit list at the end of this section)

- and 1 of the following units:

- PMAOPS101B Read dials and indicators

- PMAPROC101B Make measurements

- and between 2 and 9 units

Operations: OPS2XX Series (refer to the unit list at the end of this section)

- and between 0 and 7 from

- Support Units

Operations: Other (refer to the unit list at the end of this section)

Support (refer to the unit list at the end of this section)

- and/or other Training Packages

CORE UNITS

Core

Code	Title
PMAOHS100B	Follow OHS procedures
PMASUP100B	Apply workplace procedures
PMASUP110A	Relay and respond to information
PMASUP120A	Follow environmental work practices
PMCCOR102A	Clean plant and equipment

Core Units referenced in the Packaging Rules

Code	Title
PMAOPS101B	Read dials and indicators
PMAPROC101B	Make measurements

ELECTIVE UNITS

Operations: OPS2XX Series

Code	Title
PMAOPS212A	Use enterprise data system
PMAOPS216A	Operate local control system
PMCOPS205B	Process greenware/green products
PMCOPS206B	Operate an autoclave
PMCOPS207A	Heat accelerate the curing of precast concrete
PMCOPS208A	Operate crushing equipment
PMCOPS210B	Operate a Calcining kiln
PMCOPS220B	Operate slip casting equipment
PMCOPS221B	Operate manual glazing equipment
PMCOPS222B	Prepare materials for clay and ceramic production
PMCOPS223B	Finish products after firing
PMCOPS224B	Hand mould products
PMCOPS230B	Operate a firing kiln
PMCOPS231B	Operate extrusion equipment
PMCOPS232B	Operate pressing equipment
PMCOPS240B	Operate melting process
PMCOPS241B	Operate process ovens
PMCOPS242B	Operate blown insulation equipment
PMCOPS243B	Operate float forming equipment
PMCOPS244B	Operate fibre forming equipment
PMCOPS245B	Operate container forming equipment
PMCOPS246B	Operate glass printing equipment
PMCOPS247B	Operate primary annealing equipment
PMCOPS248B	Operate glass finishing equipment
PMCOPS249B	Operate on-line stacking and assembly equipment
PMCOPS250B	Schedule, cut and bend reinforcement
PMCOPS251B	Finish green concrete products
PMCOPS252B	Cast moulded concrete products
PMCOPS253B	Finish cured concrete products
PMCOPS254B	Spin concrete pipes
PMCOPS255B	Conduct benching operations
PMCOPS256A	Assemble, fabricate and place reinforcement
PMCOPS257A	Finish casting operation
PMCOPS258A	Demould concrete products
PMCOPS260B	Batch mix concrete
PMCOPS261B	Deliver concrete to site

PMC20104 Certificate II in Manufactured Mineral Products

Code	Title
PMCOPS265A	Prepare asphalt
PMCOPS270A	Operate forming equipment
PMCOPS271A	Operate wet and dry end equipment
PMCOPS272A	Produce fibrous plasterboard
PMCOPS290A	Use and maintain tools and equipment for refractory operations
PMCOPS291A	Prepare for, install and repair refractory brickwork/blockwork
PMCOPS292A	Prepare for and install mouldable refractory materials
PMCOPS293A	Prepare for and cast refractory materials
PMCOPS294A	Prepare for and apply shotcrete for installation
PMCOPS295A	Prepare for, install and repair ceramic fibre

Operations: Other

Code	Title
PMBPROD230B	Monitor process operations

Support

Code	Title
PMAOHS100B	Follow OHS procedures
PMAOHS110B	Respond to emergency situation
PMAOHS200B	Participate in workplace safety procedures
PMAPER200C	Work in accordance with an issued permit
PMAPER201C	Monitor and control work permits
PMAPER205B	Enter confined space
PMASUP100B	Apply workplace procedures
PMASUP120A	Follow environmental work practices
PMASUP130B	Follow established work plan
PMASUP200B	Implement production efficiencies
PMASUP210A	Process and record information
PMASUP220A	Monitor and control environmental hazards
PMCSUP170B	Shift materials safely
PMCSUP171B	Pack finished products
PMCSUP172B	Store materials for production
PMCSUP180A	Organise self
PMCSUP181A	Work in a team
PMCSUP270A	Move materials
PMCSUP271B	Operate bulk materials handling equipment
PMCSUP272A	Identify and act upon hazards in the workplace
PMCSUP273A	Receive and despatch materials
PMCSUP274B	Undertake minor maintenance
PMCSUP275A	Maintain kiln refractory
PMCSUP280A	Manage conflict at work
PMCSUP281A	Deliver customer service
PMCSUP282A	Use computers and related programs in the workplace
PMCSUP283B	Allocate and complete team tasks
PMCSUP292A	Sample and test materials and product
TDTC497C	Drive heavy rigid vehicle
TDTD1097B	Operate a forklift

PMC20204 Certificate II in Production Support

If a person seeks a second qualification at this certificate level using this Training Package a different set of operations units must be chosen.

NOTES

- 1 Requirements for a streamed Certificate II are listed in Packaging for a streamed qualification. This information can be found in the Qualifications Framework
- 2 The customisation rules of Customising advice may also need to be consulted. This information can be found in the Qualifications Framework

Qualification Requirements

Note - The following qualification details may be a duplicate of the information above due to the current method of coding packaging rules for the latest release of NTIS (National Training Information Service).

To achieve a Certificate II in Production Support:

- **15 Units:**
 - **6 Core Units where:**
 - **5 units are from the Core group**
Core (refer to the unit list at the end of this section)
 - **and 1 of the following units:**
 - PMAOPS101B Read dials and indicators
 - PMAPROC101B Make measurements
 - **and between 2 and 9 units from Operations and Support: 2XX Series**
Operations and Support: 2XX Series (refer to the unit list at the end of this section)
 - **and between 0 and 7 relevant units from another endorsed Training Package**

CORE UNITS

Core

Code	Title
PMAOHS100B	Follow OHS procedures
PMASUP100B	Apply workplace procedures
PMASUP110A	Relay and respond to information
PMASUP120A	Follow environmental work practices
PMCCOR102A	Clean plant and equipment

Core Units referenced in the Packaging Rules

Code	Title
PMAOPS101B	Read dials and indicators
PMAPROC101B	Make measurements

ELECTIVE UNITS

Operations and Support: 2XX Series

Code	Title
PMAOHS200B	Participate in workplace safety procedures
PMAOPS212A	Use enterprise data system
PMAOPS216A	Operate local control system
PMAPER200C	Work in accordance with an issued permit
PMAPER201C	Monitor and control work permits
PMAPER205B	Enter confined space
PMASUP200B	Implement production efficiencies
PMASUP210A	Process and record information
PMASUP220A	Monitor and control environmental hazards
PMBPROD230B	Monitor process operations
PMCOPS205B	Process greenware/green products
PMCOPS206B	Operate an autoclave
PMCOPS207A	Heat accelerate the curing of precast concrete
PMCOPS208A	Operate crushing equipment
PMCOPS210B	Operate a Calcining kiln
PMCOPS220B	Operate slip casting equipment
PMCOPS221B	Operate manual glazing equipment
PMCOPS222B	Prepare materials for clay and ceramic production
PMCOPS223B	Finish products after firing
PMCOPS224B	Hand mould products
PMCOPS230B	Operate a firing kiln
PMCOPS231B	Operate extrusion equipment
PMCOPS232B	Operate pressing equipment
PMCOPS240B	Operate melting process
PMCOPS241B	Operate process ovens
PMCOPS242B	Operate blown insulation equipment
PMCOPS243B	Operate float forming equipment
PMCOPS244B	Operate fibre forming equipment
PMCOPS245B	Operate container forming equipment
PMCOPS246B	Operate glass printing equipment
PMCOPS247B	Operate primary annealing equipment
PMCOPS248B	Operate glass finishing equipment
PMCOPS249B	Operate on-line stacking and assembly equipment
PMCOPS250B	Schedule, cut and bend reinforcement
PMCOPS251B	Finish green concrete products
PMCOPS252B	Cast moulded concrete products

PMC20204 Certificate II in Production Support

Code	Title
PMCOPS253B	Finish cured concrete products
PMCOPS254B	Spin concrete pipes
PMCOPS255B	Conduct benching operations
PMCOPS256A	Assemble, fabricate and place reinforcement
PMCOPS257A	Finish casting operation
PMCOPS258A	Demould concrete products
PMCOPS260B	Batch mix concrete
PMCOPS261B	Deliver concrete to site
PMCOPS265A	Prepare asphalt
PMCOPS270A	Operate forming equipment
PMCOPS271A	Operate wet and dry end equipment
PMCOPS272A	Produce fibrous plasterboard
PMCOPS290A	Use and maintain tools and equipment for refractory operations
PMCOPS291A	Prepare for, install and repair refractory brickwork/blockwork
PMCOPS292A	Prepare for and install mouldable refractory materials
PMCOPS293A	Prepare for and cast refractory materials
PMCOPS294A	Prepare for and apply shotcrete for installation
PMCOPS295A	Prepare for, install and repair ceramic fibre
PMCSUP270A	Move materials
PMCSUP271B	Operate bulk materials handling equipment
PMCSUP272A	Identify and act upon hazards in the workplace
PMCSUP273A	Receive and despatch materials
PMCSUP274B	Undertake minor maintenance
PMCSUP275A	Maintain kiln refractory
PMCSUP280A	Manage conflict at work
PMCSUP281A	Deliver customer service
PMCSUP282A	Use computers and related programs in the workplace
PMCSUP283B	Allocate and complete team tasks
PMCSUP292A	Sample and test materials and product

PMC30104 Certificate III in Manufactured Mineral Products

Core units are to be from the core list below. The operations unit at the required level is to be chosen from the operations list below. In addition to the elective support units listed below, it may be appropriate to include operations units from the previous level as elective units. Up to 12 support units may be imported from other Training Packages.

If a person seeks a second qualification at this certificate level using this Training Package a different set of operations units must be chosen.

Holders of a Certificate II in Manufactured Mineral Products will need an additional 5 units of competency to those already recognised by the Certificate II if they have achieved competence in all required prerequisites. These additional 5 units of competency must be chosen so that the total units, including those carried forward from a lower level qualification, comply with the above rules. People entering at this level must also achieve competence in any required prerequisite units, and these will be counted towards the 20 units.

NOTES

- 1 Units shown in italics in the tables below are also part of Certificate II.
- 2 Requirements for a streamed Certificate III are listed in Packaging for a streamed qualification.
- 3 The customisation rules of Customising advice may also need to be consulted.

Qualification Requirements

Note - The following qualification details may be a duplicate of the information above due to the current method of coding packaging rules for the latest release of NTIS (National Training Information Service).

To achieve a Certificate III in Manufactured Mineral Products:

- **20 Units:**
 - **7 Core Units where:**
 - **6 units are from the Core group**
Core (refer to the unit list at the end of this section)
 - **and 1 of the following units:**
 - PMAOPS101B Read dials and indicators
 - PMAPROC101B Make measurements
 - **and between 1 and 13 units from Operations: OPS3XX Series**
Operations: OPS3XX Series (refer to the unit list at the end of this section)
 - **and between 0 and 12 Units from**
 - **Support Units**
Support (refer to the unit list at the end of this section)
 - **or other Training Packages**

CORE UNITS

Core

Code	Title
PMAOHS100B	Follow OHS procedures
PMAOHS200B	Participate in workplace safety procedures
PMASUP100B	Apply workplace procedures
PMASUP110A	Relay and respond to information
PMASUP120A	Follow environmental work practices
PMCCOR102A	Clean plant and equipment

Core Units referenced in the Packaging Rules

Code	Title
PMAOPS101B	Read dials and indicators
PMAPROC101B	Make measurements

ELECTIVE UNITS

Operations: OPS3XX Series

Code	Title
PMCOPS300B	Set up and tune a process
PMCOPS301B	Operate centralised process control systems
PMCOPS310B	Process raw meal into product
PMCOPS320B	Prepare moulds and dies
PMCOPS321B	Set up and tune glazing equipment
PMCOPS340B	Set up and optimise glass forming process
PMCOPS341B	Set up and optimise glass furnace process
PMCOPS342B	Set up and optimise secondary process
PMCOPS350B	Produce architectural precast concrete
PMCOPS351A	Produce structural precast concrete
PMCOPS370A	Design and construct moulds for fibrous plaster products
PMCOPS372A	Model fibrous plaster products
PMCOPS380A	Set up and optimise finishing process
PMCOPS390A	Test refractory materials

Support

Code	Title
PMACOM300A	Contribute to the development of plant documentation
PMAOHS100B	Follow OHS procedures
PMAOHS110B	Respond to emergency situation
PMAOHS300B	Implement and monitor OHS policies and procedures for a work group
PMAPER200C	Work in accordance with an issued permit
PMAPER201C	Monitor and control work permits
PMAPER205B	Enter confined space
PMAPER300C	Issue work permits
PMAPER302B	Issue work permits (hot work/confined space)
PMASUP100B	Apply workplace procedures
PMASUP120A	Follow environmental work practices
PMASUP130B	Follow established work plan
PMASUP200B	Implement production efficiencies
PMASUP210A	Process and record information
PMASUP220A	Monitor and control environmental hazards
PMASUP300B	Identify and implement opportunities to maximise production efficiencies
PMASUP320A	Implement and monitor environmental policies
PMASUP330B	Schedule production
PMASUP390A	Use structured problem solving tools
PMCSUP170B	Shift materials safely
PMCSUP171B	Pack finished products
PMCSUP172B	Store materials for production
PMCSUP180A	Organise self
PMCSUP181A	Work in a team
PMCSUP270A	Move materials
PMCSUP271B	Operate bulk materials handling equipment
PMCSUP272A	Identify and act upon hazards in the workplace
PMCSUP273A	Receive and despatch materials
PMCSUP274B	Undertake minor maintenance
PMCSUP275A	Maintain kiln refractory
PMCSUP280A	Manage conflict at work
PMCSUP281A	Deliver customer service
PMCSUP282A	Use computers and related programs in the workplace
PMCSUP283B	Allocate and complete team tasks
PMCSUP292A	Sample and test materials and product
PMCSUP380B	Oversee team performance
PMCSUP382A	Provide coaching/mentoring in the workplace
PMCSUP391A	Collect and prepare standard samples
PMCSUP392A	Perform basic laboratory tests

PMC30104 Certificate III in Manufactured Mineral Products

Code	Title
PMCSUP393A	Perform instrumental analysis
TDTC497C	Drive heavy rigid vehicle
TDTD1097B	Operate a forklift

PMC30204 Certificate III in Production Support

If a person seeks a second qualification at this certificate level using this Training Package a different set of operations units must be chosen.

Holders of a Certificate II in Production Support will need an additional 5 units of competency to those already recognised by the Certificate II if they have achieved competence in all required prerequisites. These additional 5 units of competency must be chosen so that the total units, including those carried forward from a lower level qualification, comply with the above rules. People entering at this level must also achieve competence in any required prerequisite units, and these will be counted towards the 20 units.

NOTES

- 1 Units shown in italics in the tables below are also part of Certificate II.
- 2 The customisation rules of Customising advice may also need to be consulted.

Qualification Requirements

Note - The following qualification details may be a duplicate of the information above due to the current method of coding packaging rules for the latest release of NTIS (National Training Information Service).

To achieve a Certificate III in Production Support:

- **20 Units:**
 - **7 Core Units where:**
 - **6 units are from the Core group**
Core (refer to the unit list at the end of this section)
 - **and 1 of the following units:**
 - PMAOPS101B Read dials and indicators
 - PMAPROC101B Make measurements
 - **and between 1 and 13 units from Operations and Support: 3XX Series**
Operations and Support: Other (refer to the unit list at the end of this section)
 - **and between 0 and 12 units from**
 - **Operations and Support: Other**
Operations and Support: Other (refer to the unit list at the end of this section)
 - **and Any other endorsed Training Package**

CORE UNITS

Core

Code	Title
PMAOHS100B	Follow OHS procedures
PMAOHS200B	Participate in workplace safety procedures
PMASUP100B	Apply workplace procedures
PMASUP110A	Relay and respond to information
PMASUP120A	Follow environmental work practices
PMCCOR102A	Clean plant and equipment

Core Units referenced in the Packaging Rules

Code	Title
PMAOPS101B	Read dials and indicators
PMAPROC101B	Make measurements

ELECTIVE UNITS

Operations and Support: Other

Code	Title
PMAOHS100B	Follow OHS procedures
PMAOHS110B	Respond to emergency situation
PMAPER200C	Work in accordance with an issued permit
PMAPER201C	Monitor and control work permits
PMAPER205B	Enter confined space
PMASUP100B	Apply workplace procedures
PMASUP120A	Follow environmental work practices
PMASUP130B	Follow established work plan
PMASUP200B	Implement production efficiencies
PMASUP210A	Process and record information
PMASUP220A	Monitor and control environmental hazards
PMCSUP170B	Shift materials safely
PMCSUP171B	Pack finished products
PMCSUP172B	Store materials for production
PMCSUP180A	Organise self
PMCSUP181A	Work in a team
PMCSUP270A	Move materials
PMCSUP271B	Operate bulk materials handling equipment
PMCSUP272A	Identify and act upon hazards in the workplace
PMCSUP273A	Receive and despatch materials
PMCSUP274B	Undertake minor maintenance
PMCSUP275A	Maintain kiln refractory
PMCSUP280A	Manage conflict at work
PMCSUP281A	Deliver customer service
PMCSUP282A	Use computers and related programs in the workplace
PMCSUP283B	Allocate and complete team tasks
PMCSUP292A	Sample and test materials and product
TDTC497C	Drive heavy rigid vehicle
TDTD1097B	Operate a forklift

PMC40104 Certificate IV in Manufactured Mineral Products

There is no streamed Certificate IV qualification. This qualification is for plant technicians. People for whom this qualification is not relevant may be better served by qualifications from other Training Packages (for example, non-technical team leaders, coordinators and supervisors may be better served by a qualification in frontline management).

Core units are to be from the core list below. The operations unit at the required level is to be chosen from the operations list below. In addition to the elective support units listed below, it may be appropriate to include operations units from the previous level as elective units. Up to 15 support units may be imported from other Training Packages.

Holders of the Certificate III in Manufactured Mineral Products will need an additional 4 units of competency to those already recognised by the Certificate III, if they have achieved competence in all required prerequisites. These additional 4 units of competency must be chosen so that the total units, including those carried forward from a lower level qualification, comply with the above rules. People entering at this level must also achieve competence in any required prerequisite units, and these will be counted towards the 24 units.

NOTES

- 1 There are no streamed qualifications at Certificate IV.
- 2 The customisation rules of Customising advice may also need to be consulted. The are available in the Qualification Framework section.

Qualification Requirements

Note - The following qualification details may be a duplicate of the information above due to the current method of coding packaging rules for the latest release of NTIS (National Training Information Service).

To achieve a Certificate IV in Manufactured Mineral Products:

- **24 Units:**
 - **8 Core Units where:**
 - **7 units are from the Core group**
Core (refer to the unit list at the end of this section)
 - **and 1 of the following units:**
 - PMAOPS101B Read dials and indicators
 - PMAPROC101B Make measurements
 - **and between 1 and 5 units from OPS4XX Series**
Operations/technical: OPS4XX (refer to the unit list at the end of this section)
 - **and between 0 and 15 units from**
 - **Support units**
Support (refer to the unit list at the end of this section)
 - **and/or other Training Packages**

CORE UNITS

Core

Code	Title
PMAOHS100B	Follow OHS procedures
PMAOHS200B	Participate in workplace safety procedures
PMASUP100B	Apply workplace procedures
PMASUP110A	Relay and respond to information
PMASUP120A	Follow environmental work practices
PMASUP200B	Implement production efficiencies
PMCCOR102A	Clean plant and equipment

Core Units referenced in the Packaging Rules

Code	Title
PMAOPS101B	Read dials and indicators
PMAPROC101B	Make measurements

ELECTIVE UNITS

Operations/technical: OPS4XX

Code	Title
PMAOPS401B	Trial new process/product
PMCOPS420C	Design and prepare models, moulds and dies
PMCOPS490A	Undertake simple refractory design
PMCOPS491A	Analyse refractory failures

Support

Code	Title
BSBCMN402A	Develop work priorities
BSBCMN404A	Develop teams and individuals
BSBCMN410A	Coordinate implementation of customer service strategies
BSBCMN412A	Promote innovation and change
BSBFLM402A	Show leadership in the workplace
BSBFLM403A	Manage effective workplace relationships
BSBFLM404A	Lead work teams
BSBFLM405A	Implement operational plan
BSBFLM406A	Implement workplace information system
BSBFLM409A	Implement continuous improvement
BSZ401A	Plan assessment
BSZ402A	Conduct assessment
BSZ403A	Review assessment
BSZ404A	Train small groups
PMACOM300A	Contribute to the development of plant documentation
PMAOHS100B	Follow OHS procedures
PMAOHS110B	Respond to emergency situation
PMAOHS300B	Implement and monitor OHS policies and procedures for a work group
PMAOHS400B	Contribute to workplace OHS management system
PMAOHS401B	Assess risk
PMAPER200C	Work in accordance with an issued permit
PMAPER201C	Monitor and control work permits
PMAPER205B	Enter confined space
PMAPER300C	Issue work permits
PMAPER302B	Issue work permits (hot work/confined space)
PMASUP100B	Apply workplace procedures
PMASUP120A	Follow environmental work practices
PMASUP130B	Follow established work plan
PMASUP200B	Implement production efficiencies
PMASUP210A	Process and record information
PMASUP220A	Monitor and control environmental hazards
PMASUP300B	Identify and implement opportunities to maximise production efficiencies
PMASUP320A	Implement and monitor environmental policies
PMASUP330B	Schedule production
PMASUP390A	Use structured problem solving tools
PMASUP420A	Minimise environmental impact of process
PMCSUP170B	Shift materials safely
PMCSUP171B	Pack finished products
PMCSUP172B	Store materials for production

PM040104 Certificate IV in Manufactured Mineral Products

Code	Title
PMCSUP180A	Organise self
PMCSUP181A	Work in a team
PMCSUP270A	Move materials
PMCSUP271B	Operate bulk materials handling equipment
PMCSUP272A	Identify and act upon hazards in the workplace
PMCSUP273A	Receive and despatch materials
PMCSUP274B	Undertake minor maintenance
PMCSUP275A	Maintain kiln refractory
PMCSUP280A	Manage conflict at work
PMCSUP281A	Deliver customer service
PMCSUP282A	Use computers and related programs in the workplace
PMCSUP283B	Allocate and complete team tasks
PMCSUP292A	Sample and test materials and product
PMCSUP380B	Oversee team performance
PMCSUP382A	Provide coaching/mentoring in the workplace
PMCSUP391A	Collect and prepare standard samples
PMCSUP392A	Perform basic laboratory tests
PMCSUP393A	Perform instrumental analysis
TDTC497C	Drive heavy rigid vehicle
TDTD1097B	Operate a forklift

PMC50104 Diploma of Manufactured Mineral Products

There is no streamed diploma qualification. This qualification is for a plant technologist. People for whom this qualification is not relevant may be better served by qualifications from other Training Packages (for example non-technical team leaders, coordinators and supervisors may be better served by a qualification in frontline management).

Core units are to be from the core list below. The operations units at the required level are to be chosen from the operations list below. In addition to the elective support units listed below, it may be appropriate to include operations units from the previous level as elective units. Up to 19 support units may be imported from other Training Packages.

Holders of a Certificate IV in Manufactured Mineral Products will need an additional 6 units of competency to those already recognised by the Certificate IV, if they have achieved competence in all required prerequisites. These additional 6 units of competency must be chosen so that the total units, including those carried forward from a lower level qualification, comply with the above rules. People entering at this level must also achieve competence in any required prerequisite units, and these will be counted towards the 30 units.

NOTES

- 1 There are no streamed qualifications at Diploma level.
- 2 The customisation rules of Customising advice may also need to be consulted.

Qualification Requirements

Note - The following qualification details may be a duplicate of the information above due to the current method of coding packaging rules for the latest release of NTIS (National Training Information Service).

To achieve a Diploma of Manufactured Mineral Products:

- **30 Units:**

- **8 Core units where:**

- **7 units are from the Core group**

Core (refer to the unit list at the end of this section)

- **and 1 of the following units:**

- PMAOPS101B Read dials and indicators

- PMAPROC101B Make measurements

- **and between 2 and 8 units from Operations/technical units**

Operations/technical: OPS5XX (refer to the unit list at the end of this section)

- **and between 0 and 20 from**

- **Support units**

Support (refer to the unit list at the end of this section)

- **and between 0 and 19 units from other Training Packages**

CORE UNITS

Core

Code	Title
PMAOHS100B	Follow OHS procedures
PMAOHS200B	Participate in workplace safety procedures
PMASUP100B	Apply workplace procedures
PMASUP110A	Relay and respond to information
PMASUP120A	Follow environmental work practices
PMASUP200B	Implement production efficiencies
PMCCOR102A	Clean plant and equipment

Core Units referenced in the Packaging Rules

Code	Title
PMAOPS101B	Read dials and indicators
PMAPROC101B	Make measurements

ELECTIVE UNITS

Operations/technical: OPS5XX

Code	Title
PMAOPS511A	Determine energy transfer loads
PMAOPS512A	Determine mass transfer loads
PMAOPS520B	Manage utilities
PMAOPS521B	Plan plant shut down
PMBPREP508A	Produce drawings
PMBTECH502B	Review and analyse production trials and specify retrials
PMCOPS530B	Analyse equipment performance

Support

Code	Title
BSBCMN402A	Develop work priorities
BSBCMN404A	Develop teams and individuals
BSBCMN410A	Coordinate implementation of customer service strategies
BSBCMN412A	Promote innovation and change
BSBFLM402A	Show leadership in the workplace
BSBFLM403A	Manage effective workplace relationships
BSBFLM404A	Lead work teams
BSBFLM405A	Implement operational plan
BSBFLM406A	Implement workplace information system
BSBFLM409A	Implement continuous improvement
BSBFLM504A	Facilitate work teams
BSBFLM505A	Manage operational plan
BSBFLM509A	Promote continuous improvement
BSBFLM510A	Facilitate and capitalise on change and innovation
BSBFLM511A	Develop a workplace learning environment
BSZ401A	Plan assessment
BSZ402A	Conduct assessment
BSZ403A	Review assessment
BSZ404A	Train small groups
PMACOM300A	Contribute to the development of plant documentation
PMAOHS100B	Follow OHS procedures
PMAOHS110B	Respond to emergency situation
PMAOHS300B	Implement and monitor OHS policies and procedures for a work group
PMAOHS400B	Contribute to workplace OHS management system
PMAOHS401B	Assess risk
PMAOHS503A	Maintain the workplace OHS management system
PMAOHS510B	Manage risk
PMAPER200C	Work in accordance with an issued permit
PMAPER201C	Monitor and control work permits
PMAPER205B	Enter confined space
PMAPER300C	Issue work permits
PMAPER302B	Issue work permits (hot work/confined space)
PMASUP100B	Apply workplace procedures
PMASUP120A	Follow environmental work practices
PMASUP130B	Follow established work plan
PMASUP200B	Implement production efficiencies
PMASUP210A	Process and record information
PMASUP220A	Monitor and control environmental hazards
PMASUP300B	Identify and implement opportunities to maximise production efficiencies

PMCS50104 Diploma of Manufactured Mineral Products

Code	Title
PMASUP320A	Implement and monitor environmental policies
PMASUP330B	Schedule production
PMASUP390A	Use structured problem solving tools
PMASUP420A	Minimise environmental impact of process
PMASUP520A	Review procedures to minimise environmental impact of process
PMCSUP170B	Shift materials safely
PMCSUP171B	Pack finished products
PMCSUP172B	Store materials for production
PMCSUP180A	Organise self
PMCSUP181A	Work in a team
PMCSUP270A	Move materials
PMCSUP271B	Operate bulk materials handling equipment
PMCSUP272A	Identify and act upon hazards in the workplace
PMCSUP273A	Receive and despatch materials
PMCSUP274B	Undertake minor maintenance
PMCSUP275A	Maintain kiln refractory
PMCSUP280A	Manage conflict at work
PMCSUP281A	Deliver customer service
PMCSUP282A	Use computers and related programs in the workplace
PMCSUP283B	Allocate and complete team tasks
PMCSUP292A	Sample and test materials and product
PMCSUP380B	Oversee team performance
PMCSUP382A	Provide coaching/mentoring in the workplace
PMCSUP391A	Collect and prepare standard samples
PMCSUP392A	Perform basic laboratory tests
PMCSUP393A	Perform instrumental analysis
PSPPM502A	Manage projects
TDTC497C	Drive heavy rigid vehicle
TDTD1097B	Operate a forklift

PMC60104 Advanced Diploma of Manufactured Mineral Products

There is no streamed advanced diploma qualification. This qualification is for a process plant technologist. People for whom this qualification is not relevant may be better served by qualifications from other Training Packages (for example, non-technical team leaders, coordinators and supervisors may be better served by a qualification in frontline management).

Core units are to be from the core list below. The operations units at the required level are to be chosen from the operations list below. In addition to the elective support units listed below, it may be appropriate to include operations units from the previous level as elective units. Up to 23 support units may be imported from other Training Packages.

Holders of a Diploma of Manufactured Mineral Products will need an additional 6 units of competency to those already recognised by the Diploma, if they have achieved competence in all required prerequisites. These additional 6 units of competency must be chosen so that the total units, including those carried forward from a lower level qualification, comply with the above rules. People entering at this level must also achieve competence in any required prerequisite units, and these will be counted towards the 36 units.

NOTES

- 1 There are no streamed qualifications at Advanced Diploma level.
- 2 The customisation rules of Customising advice may also need to be consulted.

Qualification Requirements

Note - The following qualification details may be a duplicate of the information above due to the current method of coding packaging rules for the latest release of NTIS (National Training Information Service).

To achieve a Advanced Diploma of Manufactured Mineral Products:

- **36 Units:**
 - **between 0 and 23 units from other Training Packages**
 - **and 8 Core Units where:**
 - **7 units are from the Core group**
Core (refer to the unit list at the end of this section)
 - **and 1 of the following units:**
 - PMAOPS101B Read dials and indicators
 - PMAPROC101B Make measurements
 - **and between 2 and 4 units from Operations/technical units**
Operations/technical (refer to the unit list at the end of this section)
 - **and between 0 and 26 Units from**
 - **Support units**
Support (refer to the unit list at the end of this section)

CORE UNITS

Core

Code	Title
PMAOHS100B	Follow OHS procedures
PMAOHS200B	Participate in workplace safety procedures
PMASUP100B	Apply workplace procedures
PMASUP110A	Relay and respond to information
PMASUP120A	Follow environmental work practices
PMASUP200B	Implement production efficiencies
PMCCOR102A	Clean plant and equipment

Core Units referenced in the Packaging Rules

Code	Title
PMAOPS101B	Read dials and indicators
PMAPROC101B	Make measurements

ELECTIVE UNITS

Operations/technical

Code	Title
LMTEMGN06A	Design equipment and system modifications
PMAOPS600B	Modify plant
PMCOPS630B	Develop a new product
PMCOPS631B	Design structural/mechanical components

Support

Code	Title
BSBCMN402A	Develop work priorities
BSBCMN404A	Develop teams and individuals
BSBCMN410A	Coordinate implementation of customer service strategies
BSBCMN412A	Promote innovation and change
BSBFLM402A	Show leadership in the workplace
BSBFLM403A	Manage effective workplace relationships
BSBFLM404A	Lead work teams
BSBFLM405A	Implement operational plan
BSBFLM406A	Implement workplace information system
BSBFLM409A	Implement continuous improvement
BSBFLM504A	Facilitate work teams
BSBFLM505A	Manage operational plan
BSBFLM509A	Promote continuous improvement
BSBFLM510A	Facilitate and capitalise on change and innovation
BSBFLM511A	Develop a workplace learning environment
BSZ401A	Plan assessment
BSZ402A	Conduct assessment
BSZ403A	Review assessment
BSZ404A	Train small groups
LMTEMGN07A	Manage installation and commissioning of equipment and systems
LMTPDHL06A	Manage product development projects
PMACOM300A	Contribute to the development of plant documentation
PMAOHS100B	Follow OHS procedures
PMAOHS110B	Respond to emergency situation
PMAOHS300B	Implement and monitor OHS policies and procedures for a work group
PMAOHS400B	Contribute to workplace OHS management system
PMAOHS401B	Assess risk
PMAOHS503A	Maintain the workplace OHS management system
PMAOHS510B	Manage risk
PMAOHS601A	Establish workplace OHS management system
PMAPER200C	Work in accordance with an issued permit
PMAPER201C	Monitor and control work permits
PMAPER205B	Enter confined space
PMAPER300C	Issue work permits
PMAPER302B	Issue work permits (hot work/confined space)
PMASUP100B	Apply workplace procedures
PMASUP120A	Follow environmental work practices
PMASUP130B	Follow established work plan
PMASUP200B	Implement production efficiencies

Code	Title
PMASUP210A	Process and record information
PMASUP220A	Monitor and control environmental hazards
PMASUP300B	Identify and implement opportunities to maximise production efficiencies
PMASUP320A	Implement and monitor environmental policies
PMASUP330B	Schedule production
PMASUP390A	Use structured problem solving tools
PMASUP420A	Minimise environmental impact of process
PMASUP520A	Review procedures to minimise environmental impact of process
PMASUP620A	Manage environmental management system
PMCSUP170B	Shift materials safely
PMCSUP171B	Pack finished products
PMCSUP172B	Store materials for production
PMCSUP180A	Organise self
PMCSUP181A	Work in a team
PMCSUP270A	Move materials
PMCSUP271B	Operate bulk materials handling equipment
PMCSUP272A	Identify and act upon hazards in the workplace
PMCSUP273A	Receive and despatch materials
PMCSUP274B	Undertake minor maintenance
PMCSUP275A	Maintain kiln refractory
PMCSUP280A	Manage conflict at work
PMCSUP281A	Deliver customer service
PMCSUP282A	Use computers and related programs in the workplace
PMCSUP283B	Allocate and complete team tasks
PMCSUP292A	Sample and test materials and product
PMCSUP380B	Oversee team performance
PMCSUP382A	Provide coaching/mentoring in the workplace
PMCSUP391A	Collect and prepare standard samples
PMCSUP392A	Perform basic laboratory tests
PMCSUP393A	Perform instrumental analysis
PSPPM502A	Manage projects
TDTC497C	Drive heavy rigid vehicle
TDTD1097B	Operate a forklift

Assessment Guidelines

Introduction

These Assessment Guidelines provide the endorsed framework for assessment of units of competency in this Training Package. They are designed to ensure that assessment is consistent with the Australian Quality Training Framework (AQTF) *Standards for Registered Training Organisations*. Assessments against the units of competency in this Training Package must be carried out in accordance with these Assessment Guidelines.

Assessment System Overview

This section provides an overview of the requirements for assessment when using this Training Package, including a summary of the AQTF requirements; licensing/registration requirements; and assessment pathways.

Benchmarks for Assessment

Assessment within the National Training Framework is the process of collecting evidence and making judgements about whether competency has been achieved to confirm whether an individual can perform to the standards expected in the workplace, as expressed in the relevant endorsed unit of competency.

In the areas of work covered by this Training Package, the endorsed units of competency are the benchmarks for assessment. As such, they provide the basis for nationally recognised Australian Qualifications Framework (AQF) qualifications and Statements of Attainment issued by Registered Training Organisations (RTOs).

Australian Quality Training Framework Assessment Requirements

Assessment leading to nationally recognised AQF qualifications and Statements of Attainment in the vocational education and training sector must meet the requirements of the AQTF as expressed in the *Standards for Registered Training Organisations*.

The *Standards for Registered Training Organisations* can be downloaded from the DEST website at www.dest.gov.au or can be obtained in hard copy from DEST. The following points summarise the assessment requirements under the AQTF.

Registration of Training Organisations

Assessment must be conducted by, or on behalf of, an RTO formally registered by a State or Territory Registering/Course Accrediting Body in accordance with the *Standards for Registered Training Organisations*. The RTO must have the specific units of competency and/or AQF qualifications on its scope of registration. See Section 1 of the *Standards for Registered Training Organisations*.

Quality Training and Assessment

Each RTO must have systems in place to plan for and provide quality training and assessment across all its operations. See Standard 1 of the *Standards for Registered Training Organisations*.

Assessor Competency Requirements

Each person involved in training, assessment or client service must be competent for the functions they perform. See Standard 7 of the *Standards for Registered Training Organisations* for assessor competency requirements. Standard 7 also specifies the competencies that must be held by trainers.

Assessment Requirements

The RTO's assessments must meet the requirements of the endorsed components of Training Packages within its scope of registration. See Standard 8 of the *Standards for Registered Training Organisations*.

Assessment Strategies

Each RTO must identify, negotiate, plan and implement appropriate learning and assessment strategies to meet the needs of each of its clients. See Standard 9 of the *Standards for Registered Training Organisations*.

Mutual Recognition

Each RTO must recognise the AQF qualifications and Statements of Attainment issued by any other RTO. See Standard 5 of the *Standards for Registered Training Organisations*.

Access and Equity and Client Services

Each RTO must apply access and equity principles, provide timely and appropriate information, advice and support services that assist clients to identify and achieve desired outcomes. This may include reasonable adjustment in assessment. See Standard 6 of the *Standards for Registered Training Organisations*.

Partnership Arrangements

RTOs must have, and comply with, written agreements with each organisation providing training and/or assessment on its behalf. See Standard 1.6 of *Standards for Registered Training Organisations*.

Recording Assessment Outcomes

Each RTO must have effective administration and records management procedures in place, and must record AQF qualifications and Statements of Attainment issued. See Standards 4 and 10.2 of the *Standards for Registered Training*.

Issuing AQF Qualifications and Statement of Attainment

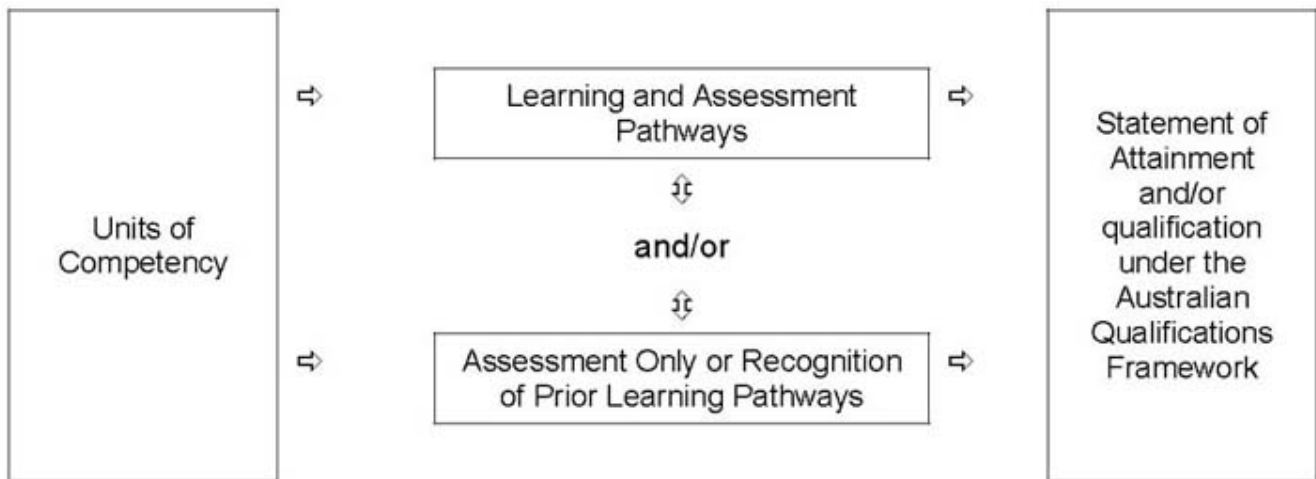
Each RTO must issue AQF qualifications and Statements of Attainment that meet the requirements of the *AQF Implementation Handbook* and the endorsed Training Packages within the scope of its registration. An AQF qualification is issued once the full requirements for a qualification, as specified in the nationally endorsed Training Package are met. A Statement of Attainment is issued where the individual is assessed as competent against fewer units of competency than required for an AQF qualification. See Standard 10 and Section 2 of the *Standards for Registered Training Organisations*.

Pathways

The competencies in this Training Package may be attained in a number of ways including through:

- formal or informal education and training
- experiences in the workplace
- general life experience, and/or
- any combination of the above.

Assessment under this Training Package leading to an AQF qualification or Statement of Attainment may follow a learning and assessment pathway, an assessment-only or recognition pathway, or a combination of the two as illustrated in the following diagram.



Each of these assessment pathways leads to full recognition of competencies held - the critical issue is that the candidate is competent, not how the competency was acquired.

Assessment, by any pathway, must comply with the assessment requirements set out in the *Standards for Registered Training Organisations*.

Learning and Assessment Pathways

Usually, learning and assessment are integrated, with assessment evidence being collected and feedback provided to the candidate at anytime throughout the learning and assessment process.

Learning and assessment pathways may include structured programs in a variety of contexts using a range of strategies to meet different learner needs. Structured learning and assessment programs could be: group-based, work-based, project-based, self-paced, action learning-based; conducted by distance or e-learning; and/or involve practice and experience in the workplace.

Learning and assessment pathways to suit New Apprenticeships have a mix of formal structured training and structured workplace experience with formative assessment activities through which candidates can acquire and demonstrate skills and knowledge from the relevant units of competency.

Assessment-Only or Recognition of Prior Learning Pathway

Competencies already held by individuals can be formally assessed against the units of competency in this Training Package, and should be recognised regardless of how, when or where they were achieved.

In an assessment-only or Recognition of Prior Learning (RPL) pathway, the candidate provides current, quality evidence of their competency against the relevant unit of competency. This process may be directed by the candidate and verified by the assessor, such as in the compilation of portfolios; or directed by the assessor, such as through observation of workplace performance and skills application, and oral and/or written assessment. Where the outcomes of this process indicate that the candidate is competent, structured training is not required. The RPL requirements of Standard 8.2 of the *Standards for Registered Training Organisations* must be met.

As with all assessment, the assessor must be confident that the evidence indicates that the candidate is currently competent against the endorsed unit of competency. This evidence may take a variety of forms and might include certification, references from past employers, testimonials from clients, and work samples. The onus is on candidates to provide sufficient evidence to satisfy assessors that they currently hold the relevant competencies. In judging evidence, the assessor must ensure that the evidence of prior learning is:

- authentic (the candidate's own work)
- valid (directly related to the current version of the relevant endorsed unit of competency)

- reliable (shows that the candidate consistently meets the endorsed unit of competency)
- current (reflects the candidate's current capacity to perform the aspect of the work covered by the endorsed unit of competency), and
- sufficient (covers the full range of elements in the relevant unit of competency and addresses the four dimensions of competency, namely task skills, task management skills, contingency management skills, and job/role environment skills).

The assessment only or recognition of prior learning pathway is likely to be most appropriate in the following scenarios:

- candidates enrolling in qualifications who want recognition for prior learning or current competencies
- existing workers
- individuals with overseas qualifications
- recent migrants with established work histories
- people returning to the workplace, and
- people with disabilities or injuries requiring a change in career.

Combination of Pathways

Where candidates for assessment have gained competencies through work and life experience and gaps in their competence are identified, or where they require training in new areas, a combination of pathways may be appropriate.

In such situations, the candidate may undertake an initial assessment to determine their current competency. Once current competency is identified, a structured learning and assessment program ensures that the candidate acquires the required additional competencies identified as gaps.

Assessor Requirements

This section identifies the mandatory competencies for assessors, and clarifies how others may contribute to the assessment process where one person alone does not hold all the required competencies.

Assessor Competencies

The *Standards for Registered Training Organisations* specify mandatory competency requirements for assessors. For information, Standard 7.3 from the *Standards for Registered Training Organisations* follows:

- 7.3 a The RTO must ensure that assessments are conducted by a person who has:
- i the following competencies¹ from the Training Package for Assessment and Workplace Training, or demonstrated equivalent competencies:
 - a TAAASS401A Plan and organise assessment;
 - b TAAASS402A Assess competence;
 - c TAAASS404A Participate in assessment validation;
 - ii relevant vocational competencies, at least to the level being assessed.
- b However, if a person does not have all of the competencies in Standards 7.3 a (i) and the vocational competencies as defined in 7.3 a (ii), one person with the competencies listed in Standard 7.3 a (i), and one or more persons who have the competencies listed in Standard 7.3 a (ii) may work together to conduct assessments.

¹ A person who holds the competencies BSZ401A Plan assessment, BSZ402A Conduct assessment, and BSZ403A Review assessment from the Training Package for Assessment and Workplace Training will be accepted for the purposes of this standard. A person who has demonstrated equivalent competencies to BSZ401A and BSZ402A and BSZ403A in the period up to 12 months following publication of the Training and Assessment Training Package will also be accepted for the purposes of this standard.

Designing Assessment Tools

This section provides an overview on the use and development of assessment tools.

Use of Assessment Tools

Assessment tools provide a means of collecting the evidence that assessors use in making judgements about whether candidates have achieved competency.

There is no set format or process for the design, production or development of assessment tools. Assessors may use prepared assessment tools, such as those specifically developed to support this Training Package, or they may develop their own.

Using Prepared Assessment Tools

If using prepared assessment tools, assessors should ensure these are benchmarked, or mapped, against the current version of the relevant unit of competency. This can be done by checking that the materials are listed on the National Training Information Service (<http://www.ntis.gov.au>). Materials on the list have been noted by the National Training Quality Council as meeting their quality criteria for Training Package support materials.

Developing Assessment Tools

When developing assessment tools, assessors must ensure that they:

- are benchmarked against the relevant unit or units of competency
- are reviewed as part of the validation of assessment strategies as required under 9.2 (i) of the *Standards for Registered Training Organisations*
- meet the assessment requirements expressed in the *Standards for Registered Training Organisations*, particularly Standards 8 and 9.

A key reference for assessors developing assessment tools is TAA04 Training and Assessment Training Package and the unit of competency TAAASS403A *Develop assessment tools*. There is no set format or process for the design, production or development of assessment materials.

Conducting Assessment

This section details the mandatory assessment requirements and provides information on equity in assessment including reasonable adjustment.

Mandatory Assessment Requirements

Assessments must meet the criteria set out in Standard 8 from the *Standards for Registered Training Organisations*. For information, Standard 8 from the *Standards for Registered Training Organisations* is reproduced below.

8 RTO Assessments

The RTO's assessments meet the requirements of the endorsed components of Training Packages and the outcomes specified in accredited courses within the scope of its registration.

8.1 The RTO must ensure that assessments (including RPL):

- i. comply with the assessment guidelines included in the applicable nationally endorsed Training Packages or the assessment requirements specified in accredited courses;
- ii. lead to the issuing of a statement of attainment or qualification under the AQF when a person is assessed as competent against nationally endorsed unit(s) of competency in the applicable Training Package or modules specified in the applicable accredited course;
- iii. are valid, reliable, fair and flexible;
- iv. provide for applicants to be informed of the context and purpose of the assessment and the assessment process;
- v. where relevant, focus on the application of knowledge and skill to standard of performance required in the workplace and cover all aspects workplace performance, including task skills, task management skills, contingency management skills and job role environment skills;
- vi. involve the evaluation of sufficient evidence to enable judgements to be made about whether competency has been attained;
- vii. provide for feedback to the applicant about the outcomes of the assessment process and guidance on future options in relation to those outcomes;
- viii. are equitable for all persons, taking account of individual needs relevant to the assessment; and
- ix. provide for reassessment on appeal.

8.2 a The RTO must ensure that RPL is offered to all applicants on enrolment

b The RTO must have an RPL process that:

- i. is structured to minimise the time and cost to applicants; and
- ii. provides adequate information, support and opportunities for participants to engage in the RPL process.

Access and Equity

An individual's access to the assessment process should not be adversely affected by restrictions placed on the location or context of assessment beyond the requirements specified in this Training Package.

Reasonable adjustments can be made to ensure equity in assessment for people with disabilities. Adjustments include any changes to the assessment process or context that meet the individual needs of the person with a disability, but do not change competency outcomes. Such adjustments are considered 'reasonable' if they do not impose an unjustifiable hardship on a training provider or employer. When assessing people with disabilities, assessors are encouraged to apply good practice assessment methods with sensitivity and flexibility.

Further Sources of Information

The section provides a listing of useful contacts and resources to assist assessors in planning, designing, conducting and reviewing of assessments against this Training Package.

Contacts

TVET Australia Ltd
Level 21, 390 St Kilda Road
MELBOURNE VIC 3000
PO Box 12211
A'Beckett Street Post Office
MELBOURNE VIC 8006
Telephone: (03) 9832 8100
Fax: (03) 9832 8199
Web: www.atpl.net.au
Email: sales@atpl.net.au

Innovation and Business Industry Skills Council
Building B, Level 2
192 Burwood Road
HAWTHORN VIC 3122
Telephone: (03) 9815 7000
Fax: (03) 9815 7001
Email: virtual@ibsa.org.au

General Resources

Refer to <http://antapubs.dest.gov.au/publications/search.asp> to locate the following ANTA publications.

AQF Implementation Handbook, third Edition. Australian Qualifications Framework Advisory Board, 2002, aqf.edu.au

Australian Quality Training Framework (AQTF) - for general information go to:
www.dest.gov.au/sectors

Australian Quality Training Framework (AQTF) - for resources and information go to:
www.dest.gov.au

Australian Quality Training Framework *Standards for Registered Training Organisations*, Australian National Training Authority, Melbourne, 2005. Available in hard copy from State and Territory Training Authorities or can be downloaded from www.dest.gov.au

TAA04 Training and Assessment Training Package. This is available from the Innovation and Business Skills Australia (IBSA) Industry Skills Council and can be viewed, and components downloaded, from the National Training Information Service (NTIS). National Training Information Service, an electronic database providing comprehensive information about RTOs, Training Packages and accredited courses – www.ntis.gov.au *Style Guide for Training Package Support Materials*, Australian National Training Authority, Melbourne, 2003. Can be downloaded from the ANTA page at www.dest.gov.au

Assessment Resources

Training Package Assessment Guides - a range of resources to assist RTOs in developing Training Package assessment materials developed by DEST with funding from the Department of Education, Training and Youth Affairs. It is made up of 10 separate titles, as described at the ANTA publications page of www.dest.gov.au. Go to www.resourcegenerator.gov.au/loadpage.asp?TPAG.htm

Printed and/or CD ROM versions of the Guides can be purchased from Australian Training Products (ATP). The resource includes the following guides:

- 1 Training Package Assessment Materials Kit

- 2 Assessing Competencies in Higher Qualifications
- 3 Recognition Resource
- 4 Kit to Support Assessor Training
- 5 Candidate's Kit: Guide to Assessment in New Apprenticeships
- 6 Assessment Approaches for Small Workplaces
- 7 Assessment Using Partnership Arrangements
- 8 Strategies for ensuring Consistency in Assessment
- 9 Networking for Assessors
- 10 Quality Assurance Guide for Assessment

An additional guide "Delivery and Assessment Strategies" has been developed to complement these resources.

Assessment Tool Design and Conducting Assessment

VETASSESS & Western Australian Department of Training and Employment 2000, *Designing Tests - Guidelines for designing knowledge based tests for Training Packages*. Vocational Education and Assessment Centre 1997, *Designing Workplace Assessment Tools, A self-directed learning program*, NSW TAFE.

Manufacturing Learning Australia 2000, *Assessment Solutions*, Australian Training Products, Melbourne.

Rumsey, David 1994, *Assessment practical guide*, Australian Government Publishing Service, Canberra.

Assessor Training

Australian Committee on Training Curriculum (ACTRAC) 1994, *Assessor training program - learning materials*, Australian Training Products, Melbourne.

Australian National Training Authority, *A Guide for Professional Development*, ANTA, Brisbane.

Australian Training Products Ltd *Assessment and Workplace Training, Training Package - Toolbox*, ATPL Melbourne.

Green, M, et al. 1997, *Key competencies professional development Package*, Department for Education and Children's Services, South Australia.

Victorian TAFE Association 2000, *The professional development CD: A learning tool*, VTA, Melbourne.

Assessment System Design and Management

Office of Training and Further Education 1998, *Demonstrating best practice in VET project - assessment systems and processes*, OTFE Victoria.

Toop, L., Gibb, J. & Worsnop, P. *Assessment system designs*, Australian Government Publishing Service, Canberra.

Western Australia Department of Training and VETASSESS 1998, *Kit for Skills Recognition Organisations*, WADOT, Perth.

Competency Standards

What is competency?

The broad concept of industry competency concerns the ability to perform particular tasks and duties to the standard of performance expected in the workplace. Competency requires the application of specified skills, knowledge and attitudes relevant to effective participation in an industry, industry sector or enterprise.

Competency covers all aspects of workplace performance and involves performing individual tasks; managing a range of different tasks; responding to contingencies or breakdowns; and, dealing with the responsibilities of the workplace, including working with others. Workplace competency requires the ability to apply relevant skills, knowledge and attitudes consistently over time and in the required workplace situations and environments. In line with this concept of competency Training Packages focus on what is expected of a competent individual in the workplace as an outcome of learning, rather than focussing on the learning process itself.

Competency standards in Training Packages are determined by industry to meet identified industry skill needs. Competency standards are made up of a number of units of competency each of which describes a key function or role in a particular job function or occupation. Each unit of competency within a Training Package is linked to one or more AQF qualifications.

Contextualisation of Units of Competency by RTOs

Registered Training Organisation (RTOs) may contextualise units of competency to reflect local outcomes required. Contextualisation could involve additions or amendments to the unit of competency to suit particular delivery methods, learner profiles, specific enterprise equipment requirements, or to otherwise meet local needs. However, the integrity of the overall intended outcome of the unit of competency must be maintained.

Any contextualisation of units of competency in this endorsed Training Package must be within the bounds of the following advice. In contextualising units of competency, RTOs:

- must not remove or add to the number and content of elements and performance criteria
- may add specific industry terminology to performance criteria where this does not distort or narrow the competency outcomes
- may make amendments and additions to the range statement as long as such changes do not diminish the breadth of application of the competency and reduce its portability, and/or
- may add detail to the evidence guide in areas such as the critical aspects of evidence or resources and infrastructure required where these expand the breadth of the competency but do not limit its use.

Components of Units of Competency

The components of units of competency are summarised below, in the order in which they appear in each unit of competency.

Unit Title

The unit title is a succinct statement of the outcome of the unit of competency. Each unit of competency title is unique, both within and across Training Packages.

Unit Descriptor

The unit descriptor broadly communicates the content of the unit of competency and the skill area it addresses. Where units of competency have been contextualised from units of competency from other endorsed Training Packages, summary information is provided. There may also be a brief second

paragraph that describes its relationship with other units of competency, and any licensing requirements.

Prerequisite Units (optional)

If there are any units of competency that must be completed before the unit, these will be listed.

Application of the Unit

This sub-section fleshes out the unit of competency's scope, purpose and operation in different contexts, for example, by showing how it applies in the workplace.

Competency Field (Optional)

The competency field either reflects the way the units of competency are categorised in the Training Package or denotes the industry sector, specialisation or function. It is an optional component of the unit of competency.

Sector (optional)

The industry sector is a further categorisation of the competency field and identifies the next classification, for example an elective or supervision field.

Elements of Competency

The elements of competency are the basic building blocks of the unit of competency. They describe in terms of outcomes the significant functions and tasks that make up the competency.

Performance Criteria

The performance criteria specify the required performance in relevant tasks, roles, skills and in the applied knowledge that enables competent performance. They are usually written in passive voice. Critical terms or phrases may be written in bold italics and then defined in range statement, in the order of their appearance in the performance criteria.

Required Skills and Knowledge

The essential skills and knowledge are either identified separately or combined. Knowledge identifies what a person needs to know to perform the work in an informed and effective manner. Skills describe the application of knowledge to situations where understanding is converted into a workplace outcome.

Key Competencies

The way the Key Competencies relate to the unit will be described (unless the developer has described them at the level of the qualification). The Key Competencies are described in more detail at the end of this section.

Range Statement

The range statement provides a context for the unit of competency, describing essential operating conditions that may be present with training and assessment, depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts. As applicable, the meanings of key terms used in the performance criteria will also be explained in the range statement.

Evidence Guide

The evidence guide is critical in assessment as it provides information to the Registered Training Organisation (RTO) and assessor about how the described competency may be demonstrated. The

evidence guide does this by providing a range of evidence for the assessor to make determinations, and by providing the assessment context. The evidence guide describes:

- conditions under which competency must be assessed including variables such as the assessment environment or necessary equipment
- relationships with the assessment of any other units of competency
- suitable methodologies for conducting assessment including the potential for workplace simulation
- resource implications, for example access to particular equipment, infrastructure or situations
- how consistency in performance can be assessed over time, various contexts and with a range of evidence, and expectations at the AQF qualification level involved.

Key Competencies

All Training Packages require the integration of Key Competencies either in each unit of competency, or across a qualification, depending on industry needs and preferences.

The Key Competencies were first defined in 1992 in the project report, *Putting General Education to Work: The Key Competencies Report* (Mayer Committee 1992). The skills and knowledge they describe are essential for effective workplace participation and involve the sorts of capabilities commonly used by employers as selection criteria. They underpin the ability of employees to adapt to technological, organisational, societal and functional change.

The Key Competencies are generic, in that they apply to work in general, rather than to particular occupations or industries. They focus on the application of knowledge and skills in an integrated way in workplace situations. The seven Key Competencies are:

1 Communicating ideas and information

The capacity to communicate effectively with others using the range of spoken, written, graphic and other non-verbal means of expression.

2 Collecting, analysing and organising information

The capacity to locate, sift and sort information in order to select what is required and to present it in a useful way, and evaluate both the information itself and the sources and methods used to collect it.

3 Planning and organising activities

The capacity to plan and organise one's own work activities, including making good use of time and resources, sorting out priorities and monitoring one's performance.

4 Working with others in teams

The capacity to interact effectively with other people both on a one-to-one basis and in groups, including understanding and responding to the needs of a client and working effectively as a member of a team to achieve a shared goal.

5 Using mathematical ideas and techniques

The capacity to use mathematical ideas, such as number and space, and techniques such as estimation and approximation, for practical purposes.

6 Solving problems

The capacity to apply problem-solving strategies in purposeful ways, both in situations where the problem and the solution are clearly evident and in situations requiring creative thinking and a creative approach to achieve a desired outcome.

7 Using technology

The capacity to apply technology, combining the physical and sensory skills needed to operate equipment with the understanding of scientific and technological principles needed to explore and adapt systems.

Performance Levels

There are three levels of performance defined within the Key Competencies. These are stand-alone levels and do not correspond to the AQF qualification levels.

- **Performance Level 1** is concerned with the level of competence needed to *undertake* activities efficiently with sufficient self-management to meet the explicit requirements of the activity, and to make judgements about the quality of outcomes against established criteria.
- **Performance Level 2** describes the competence needed to *manage* activities requiring the selection, application and integration of a number of elements, and to select from established criteria to judge quality of process and outcome.
- **Performance Level 3** describes the competence needed to *evaluate and reshape* processes, to establish and use principles in order to determine appropriate ways of approaching activities, and to establish criteria for judging quality of process and outcome.

However, relating performance to the specific industry or workplace context may be more useful than interpreting the somewhat abstracted performance levels provided above. Where the Key Competencies are defined in the unit of competency, you will find them in a table, together with examples of their application, to help with assessment of their performance.

Also, in evaluating the level of performance for the Key Competencies, consider the performance expectations at the AQF qualification level involved.

Delivery and Assessment of Key Competencies

The Key Competencies are integral to workplace competency, and, as such must be explicitly considered in the design, customisation, delivery and assessment of vocational education and training programs as represented diagrammatically below.



Appendices

Glossary

In this Training Package the following terms are used with the meanings given below. These meanings may be slightly more restrictive than common usage but have been adopted to allow greater clarity and definition within this Training Package.

When used in a unit of competency, these words are underlined.

3 s , 6 s	s (sigma) is the symbol used for one standard deviation on a normal distribution curve. 3 s then is three standard deviations and is used to determine process capability. 6 s is used by some companies pursuing advanced competitive manufacturing policies.
annealing	Annealing is a heat treatment process to remove the stresses from manufacture.
authorisation of permit	Signing of permit by a competent person.
business sustainability	Means a business is profitable and competitive in the foreseeable future. Effective management of environmental impacts and opportunities can contribute to business sustainability by reducing costs, differentiating goods and services and contributing to a better corporate image.
confined space	<p>The Australian standard (AS2865) definition given for confined space entry is used in this Training Package, viz:</p> <ul style="list-style-type: none"> • an enclosed or partially enclosed space which: <ul style="list-style-type: none"> • is at atmospheric pressure during occupancy • is not intended or designed primarily as a place of work • may have restricted means for entry and exit; and • may: <ul style="list-style-type: none"> • have an atmosphere which contains potentially harmful levels of contaminant • not have a safe oxygen level; or • cause engulfment. <p>A confined space is determined in part by the hazards associated with a defined set of circumstances (restricted entry or hazardous atmosphere, risk of engulfment) and not just with work performed in a restricted space. In this Training Package work in a 'tight spot' which is not a confined space as defined has been referred to as a 'restricted space'.</p> <p>Examples of confined space include (but are not restricted to):</p> <ul style="list-style-type: none"> • storage tanks, tank cars, process vessels, boilers, pressure vessels, silos and other tank-like compartments • open-topped spaces such as pits or degreasers • pipes, sewers, shafts, ducts and similar structures • shipboard spaces entered through a small hatchway or access point, cargo tanks, cellular double bottom tanks, duct keels, ballast and oil tanks and void spaces (but not

	<p>including dry cargo holds).</p> <p>A person is deemed to have entered a confined space when their head (ie. the breathing zone) or upper part of the body is within the boundary of the confined space. (Note that inserting an arm for atmospheric testing is not considered an entry to a confined space).</p>
customer	Any person who is the recipient of the product or service which flows from the unit of competency. They may be internal or external to the organisation.
creel	A reel which contains fibre, thread or similar.
dehacking	Removing from a mould.
emergency equipment	Includes first aid equipment, eye wash kit or shower, communications equipment fire extinguisher.
environmental performance	This may be defined as a measure of an organisation's impact on the environment and of its ability to manage that impact.
fore hearth	Part of the melting furnace near the front.
former	A component used to shape or form.
frit	Particulate material such as gravel, sand, broken glass or similar sprinkled on the surface of green clay/ceramic products to give a decorative finish.
go-no go gauges	A simple device to check that something is the right size. If it fits, it's a 'go' and is correct. If not it is a 'no-go' and is not correct.
gunite	A form of sprayed refractory also called shotcrete.
hazard	<p>A source or situation with a potential for harm in terms of human injury or ill health, damage to property, the environment or a combination of these. It is also useful to consider hazards as sources of energy that, if not controlled may cause injury or damage.</p> <p>Factors such as inadequate work practices, lack of training or fatigue are NOT hazards but are conditions that may result in the loss of control of the hazard and so injury or damage occurring.</p> <p>Some examples of hazards are noise, hazardous substances, mobile plant such as fork lifts and front end loaders, moving parts of machinery, electricity, gravity (falls from heights), dusts.</p>
hazchem	An emergency response code. Refer to Australian Dangerous Goods Code Volume 2 page 265.
hierarchy of control	Also referred to as the 'safety decision hierarchy' and describes

	<p>the preferred order of risk control measures from most to least preferred, that is:</p> <ol style="list-style-type: none"> 1 elimination of the hazard 2 substitution with a lesser hazard 3 isolation of personnel from the hazard 4 engineering controls 5 administrative controls (eg, procedures and training) 6 personal protective equipment.
<p>hot work</p>	<p>Involves using equipment that generates heat, sparks, flames or any other sources of ignition in an atmosphere that may be flammable. Includes work with welders, cutters including oxygen cutters, power tools, grinders, mobile phones, radios (unless intrinsically safe).</p> <p>Hot work can also include breaking into 'live' equipment or performing work on live equipment that has the potential to release its contents (eg, hot tap).</p>
<p>incident</p>	<p>An event that has caused or has the potential to cause injury, ill-health or damage (incident is the preferred term rather than accident).</p>
<p>integral</p>	<p>Equipment which forms part of the operation of a main item of equipment is regarded as 'integral' to that main item. Examples include valves and lubricators.</p> <p>Typically equipment will be regarded as being 'integral' to the main item if:</p> <ol style="list-style-type: none"> 1 it is close/attached to the main item 2 it has simultaneous operation with the main item 3 its operation does not require significant additional knowledge or skills. 4 Equipment is not integral if it has independent operation of its own.
<p>isolation</p>	<p>Known also as lock-out and tag out. A system which ensures that the equipment and the process is safe to work on while a worker is in a vulnerable position such as performing maintenance. It may include:</p> <ul style="list-style-type: none"> • process isolation which ensures process materials are unable to enter the vessel/equipment/work area while isolated and includes inserting blinds into flanges, removing spool pieces from pipe lines, performing double block and bleed type isolations for hazardous materials • devices such as isolating switches, locks, safety bars, etc to lock controls to an 'off' position so that moving parts, rotating equipment, systems or devices with stored energy (electrical, hydraulic or pneumatic) cannot be activated without the keys needed to open the lock • a danger 'tag' system that incorporates the use of personal locks on the 'tag' is another isolation approach. Tie on tags without locks are not considered as isolations.

kiln cars	Wheeled trolleys or similar onto which the green clay/ ceramic products are loaded for transport into/through the firing kiln.
kiln furniture	Kiln furniture is jigs etc which are used to hold the green clay/ceramic products while they are in the firing kiln.
lehr furnace	A lehr is a furnace used for the processing of glass such as for annealing or for shaping.
locked out	<p>Equipment which is not to be operated for any reason may be padlocked, or otherwise prevented from operation using a keyed lock. The term 'locked out' is commonly used. A lock out may be accompanied by a tag out, or a lock out system may incorporate a tag.</p> <p>Lock out means the isolation by a mechanical device, generally a lock, which, when applied at the source, physically prevents the control to any electrical or mechanical equipment being turned on.</p> <p>Refer to Australian Standard 2865.</p>
miscible	Will mix, or dissolve, together.
modulus	A measure of the strength, or stiffness of a material.
MSDS	Material safety data sheets - all manufacturers and suppliers of chemicals are obliged to produce an MSDS for each hazardous chemical. It contains statements about its chemical and physical properties, health hazards, precautions for use and safe handling instructions.
muda	<p>(Waste) - activities and results to be eliminated; within manufacturing, categories of waste, according to Shigeo Shingo, include:</p> <ul style="list-style-type: none"> • excess production and early production • delays • movement and transport • poor process design • inventory • inefficient performance of a process • making defective items.
Occupational Health and Safety Management System (OHSMS)	Includes that part of the organisation's overall management system for developing , implementing, reviewing and maintaining the activities for managing OHS risks associated with the business of the organisation.
operability	Can be defined as any operation inside the design envelope that would cause a shutdown which could possibly lead to a violation of environmental, health or safety regulations or negatively impact on profitability.
packaged	The term 'packaged' plant means an item of plant which may or may not be skid mounted and is brought in ready to operate.

	<p>This is how the industry typically uses this term.</p> <p>It is also used in this Training Package to include all items of plant which are operated with minimal need to understand the operation of the unit, regardless of the size and complexity of the item itself. It also covers plant where the operation is basically restricted to turning it on and off with minimal monitoring, control and understanding of its operation by the user. Typical packaged plant may include compressors (large and small), boilers, cooling towers (where the servicing and control is outsourced), air conditioning units, etc.</p>
P&ID	<p>Piping and instrumentation diagram - also known as ELD (engineering line diagram) and process flow diagrams.</p>
participatory arrangements	<p>Are those arrangements that inform employees and other stakeholders of OHS matters, seek their input and offer opportunity for stakeholders to participate in decisions that may impact on their OHS. May also be referred to as consultative arrangements, however participation implies a higher level of involvement. Arrangements may include:</p> <ul style="list-style-type: none"> • OHS committees or improvement teams and other committees such as consultative and planning • health and safety representatives • employee and supervisor involvement in OHS activities such as inspections, audits, risk assessments • procedures for reporting hazards, raising and addressing OHS issues • OHS teams • OHS included in management, staff and employee meetings.
permit to work systems	<p>A written authority document that may include:</p> <ul style="list-style-type: none"> • approval to undertake work and activities including tests, measurements and monitoring such as working in situations requiring isolation of equipment, hot work for welding and cutting in hazardous environments and confined space entry • authorised by a responsible or designated person directly in control of the work • certifies appropriate precautions and controls to be followed • incorporates checklists conditions and actions such as the frequency and duration of the work, atmospheric tests • follows recognised industry standard recording practices. <p>A pre-start risk assessment should form the basis of the permit to work systems as the requirements will be related to the identified risks.</p> <p>Also refer to authorisation and validation.</p>
place of work	<p>The 'premises where persons work'. State regulations may have a specific definition which should be used as appropriate.</p>

PPE	Personal protective equipment - the last line of defence against workplace hazards - includes things like safety boots, gloves, goggles, and glasses, ear muffs, hard hats, clothing, respirators or masks, reflective vests.
premises	Includes 'any place' of work, and in particular includes: <ol style="list-style-type: none"> 1 any land, building or part of any building 2 any vehicle, vessel or aircraft 3 any installation on land, on the bed of any waters or floating on any waters 4 any tent or movable structure.
prerequisites	A prerequisite unit of competency has knowledge/skills which are required to achieve a subsequent competency. In a structured training program, units with prerequisites would normally be taught after the prerequisite unit. In an assessment situation, they would often be assessed concurrently.
procedures	Includes all work instructions, standard operating procedures, operator's manuals, contractor and employee handbooks, formulas/recipes, batch sheets, temporary instructions and similar instructions provided for the smooth running of the plant. It also includes all OHS specific procedures such as for hazard and incident reporting, communication, consultation and issue resolution and risk management. They may be written, verbal, computer based or in some other form. For the purposes of this Training Package, 'procedures' also includes good operating practice as may be defined by industry codes of practice (eg, Responsible Care) and government regulations.
pug	Typically a lump of clay. May also be used to describe a type of mixer used for mixing viscous pastes (pug mill).
reports	Includes the filling out of forms, completing logs/log sheets, entering data into a computer based record system, noting required items on a whiteboard or communicating verbally.
rheology	The study of the flow properties of thick fluids - similar to viscosity only usually applied to plastic masses such as polymers and clays.
risk	The chance of something happening that will result in injury or damage. It is measured in terms of consequences and likelihood.
risk assessment	Risk assessment is a two step process that involves analysing the risk to identify factors influencing the risk and the range of potential consequences and assessing: <ol style="list-style-type: none"> 1 effectiveness of existing controls 2 likelihood of each consequence considering exposure and hazard level 3 combining these in some way to obtain a level of risk.

	<p>4 A complete risk assessment will also include comparison of the determined risk with pre established criteria for tolerance (or as low as reasonably achievable) and the subsequent ranking of risks requiring control.</p> <p>4 Many organisations have specific risk assessment methods such as the HAZOP methodology for new/modified design and JHA/JSA, STOP and Hazpak for routine application as part of the daily work activity.</p>
risk management	The whole systematic process that is directed towards the identifying hazards, assessing the risk and developing controls to minimise the risk and monitoring the effectiveness of the controls (and taking action as required).
risk register	List of risks, their location, together with a range of possible scenarios or circumstances under which they may cause injury or damage and the results of the risk analysis related to the hazards.
screeding	The process of leveling cast concrete.
senses	The use of the senses of sight, hearing, smell and where appropriate touch. Taste would rarely if ever be an appropriate sense in this context.
shotcrete	A form of sprayed refractory, often called gunite.
sleeking	The process of putting a smooth (sleek) finish on a green product.
slump	A test used on concrete prior to casting to ensure it is suitable for this casting application.
stakeholders	Include managers, supervisors, employees, OHS, representatives, OHS committees.
stoichiometry	A field of chemistry which studies the amount of product yielded from given reactants under specified circumstances.
steel	Most pre-cast structural and architectural concrete used contains reinforcing. This reinforcing is commonly steel mesh or steel reinforcing bar. Because of this the word 'steel' is commonly used to mean reinforcing.
tagged out	<p>Equipment which is not to be operated for any reason will carry a 'tag' indicating this and so the term 'tagged out' is commonly used. A tag out may be accompanied by a lock out, or a lock out may be used to replace a tag out.</p> <p>A tag means a notice or ticket placed on equipment at the source and contains the word directing persons "NOT TO OPERATE" such equipment.</p> <p>A tag can indicate equipment is " Out of Service" as it is faulty or "Personal Danger" indicating personnel are working on equipment and is a warning to persons that the equipment is</p>

	<p>being worked on and must not be operated. Tagging alone is not usually regarded as 'isolation'.</p>
temper water	Water additions to bring the plaster to the proper consistency.
triple bottom line principles	Can be defined as the integration of environmental, commercial and social aspects of business operations.
utilities	<p>Utilities is used to mean:</p> <ul style="list-style-type: none"> • steam (saturated and/or superheated) • air (instrument, safety, process and/or mechanical) • water (cooling and/or process) • fuel (gas, oil) • other heating/cooling mediums (oil, 'Dowtherm', brine) • electricity.
validation of permit	Confirmation that the conditions of the permit have been met.
weatherometer	A machine to artificially weather age test samples.
workplace	See 'place of work'.

PMCCOR102A

Clean plant and equipment

Unit Descriptor

This competency covers general housekeeping duties, as well as the cleaning of plant and equipment.

This competency is typically performed by all operators working either independently or as part of a work team.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Identify housekeeping requirements. | 1.1 Explain and understand site safety and housekeeping standards
1.2 Undertake housekeeping inspection in accordance with procedures/work instructions
1.3 Identify and schedule housekeeping requirements as appropriate. |
| 2. Perform general housekeeping duties. | 2.1 Keep designated work areas clean to enterprise specific standards
2.2 Keep designated work areas clear of obstructions
2.3 Handle and use chemicals and solvents as per the manufacturers guidelines and company specifications
2.4 Ensure work area is ready for next user
2.5 Remove work materials to designated locations. |
| 3. Clean plant and equipment. | 3.1 Keep assigned plant and equipment clean following established enterprise procedures
3.2 Perform specialised cleaning procedures in strict accordance with standard operating procedures
3.3 Ensure that appropriate personal protective equipment is used as required. |
| 4. Dispose of waste materials. | 4.1 Correctly identify waste materials
4.2 Remove waste materials to a designated location. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	-
Solving problems	1
Using technology	-

RANGE STATEMENT

This competency unit may vary between enterprises depending upon a range of practices and procedures, with consideration given to plant configuration and process.

- cleaning methods and procedures
 - the type of tools and equipment used in special situations
 - the use of personal protective equipment.
-
- cleaning equipment and materials
 - brooms
 - shovels
 - solvents
 - waste containers
 - safety equipment.
-
- correct equipment not immediately available
 - safety issues associated with cleaning
 - ensuring that housekeeping aids rather than interferes with production.

All operations are performed in accordance with standard procedures and work instructions.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the process sufficient to recognise non-standard situations and then determine an appropriate action which is consistent with operating guidelines.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements, along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the process.

Competence includes the ability to:

- apply and describe:
 - duty of care
 - requirements for housekeeping process
 - procedures for plant maintenance
 - safe handling procedures
 - the standard of cleanliness required
- distinguish between:
 - reusable materials and waste
 - routine and special cleaning needs

as is relevant to the practical operation of the process.

Critical aspects

It is essential that the process be understood and that the importance of good housekeeping known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- early warning signs of areas in need of cleaning are recognised
- work areas are kept tidy and clean
- equipment is neatly stored, in a safe manner, in the correct location at all times when not in use
- equipment is always tidy and safe when in use.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Concurrent assessment and prerequisite competencies

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Assessment method, context and resource implications

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCOPS103B

Operate equipment

Unit Descriptor

This competency covers the operation of any item of equipment which is operated with limited application of knowledge.

This competency is typically performed by operators operating package and similar plant at any level.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Follow workplace procedures. | 1.1 Identify hazards and implement required control procedures
1.2 Access and follow appropriate procedures/work instructions
1.3 Complete all reporting (written, verbal and electronic)
1.4 Recognise and report non-conformance to procedures/work instruction. |
| 2. Monitor and operate the equipment/process. | 2.1 Complete pre-start checks according to procedure
2.2 Turn the equipment on and off as required
2.3 Monitor operation of equipment/process as per standard procedure/work instructions
2.4 Recognise deviations from standard/desired conditions
2.5 Take corrective action specified in standard procedures/work instructions. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

- packaged plant
 - portable equipment
 - mobile compressors
 - package boilers/heaters
 - air conditioning plant, etc
- routine equipment
 - fans
 - blowers, etc.

The equipment itself may be quite complicated and sophisticated and may include computer control, however, the knowledge and understanding required to operate it is limited. Where knowledge and understanding of the process and/or equipment is required, a series 200 operations competency will be more appropriate.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the equipment sufficient to recognise:

- hazards associated with normal use
- abnormal operating conditions and associated hazards
- alert the appropriate individuals.

Knowledge of the enterprise's standard procedures and work instructions, along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the equipment.

Competence includes the ability to:

- describe:
 - appropriate safety procedures concerning the operation of the equipment
 - procedures relating to the reporting of hazardous conditions
 - appropriate emergency/shutdown procedures

as is relevant to the practical operation of the equipment.

Critical aspects

It is essential that the equipment and process be understood and that the importance of critical material properties is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- standard procedures are followed
- deviations from desired conditions are recognised
- action specified in the standard procedures is carried out.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Concurrent assessment and prerequisite competencies

This unit has no prerequisite competencies.

This unit may be assessed in conjunction with:

- PMAOPS101B Read dials and indicators
- PMAPROC101B Make measurements.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Assessment method, context and resource implications

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation. A combination of these techniques should be used to ensure the competence is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCOPS201B

Unit Descriptor

Operate a unit of equipment

This competency covers the preparation and operation of equipment, including the rectification of routine problems. This competency is for enterprise specific equipment items which are not otherwise covered.

This competency is typically performed by operators working either independently or as part of a work team.

Unit Sector

This unit has no prerequisites.

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Prepare the equipment for production. | <ul style="list-style-type: none"> 1.1 Identify hazards and implement hazard controls according to procedure 1.2 Set up line in accordance with job specifications 1.3 Supply materials to equipment 1.4 Conduct equipment pre-start up procedure and visual checks according to enterprise procedure checklist 1.5 Set up and configure equipment start up functions to comply with standard operating procedures. |
| 2. Operate equipment. | <ul style="list-style-type: none"> 2.1 Identify customer requirements and set minimum parameters in accordance with batch sheets 2.2 Start up equipment in accordance with work instructions 2.3 Ensure equipment is operated in accordance with established enterprise procedures. |
| 3. Monitor and record operation. | <ul style="list-style-type: none"> 3.1 Monitor equipment performance in accordance with work instructions and manufacturer's specifications 3.2 Monitor non conforming product against customer specifications 3.3 Adjust and control equipment to ensure correct product quality 3.4 Complete final inspection checks 3.5 Complete appropriate records and logs. |
| 4. Rectify routine problems. | <ul style="list-style-type: none"> 4.1 Identify the range of faults that can occur during the operation 4.2 Determine and rectify fault causes by procedures/work instructions 4.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions 4.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions 4.5 Identify non-routine problems and report to designated person. |

PMCOPS201B Operate a unit of equipment

- 5. Shut down equipment.
 - 5.1 Ensure line is clear of all product and left in a safe manner for start up
 - 5.2 Shut down equipment in accordance with work instructions
 - 5.3 Complete appropriate records and logs
 - 5.4 Shut down equipment in an emergency situation.

- 6. Prepare equipment for maintenance.
 - 6.1 Isolate equipment in accordance with work instructions
 - 6.2 Remove any remaining product or materials safely
 - 6.3 Make sure area is clear and safe for maintenance.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	1
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency unit includes the operation of items of equipment where the operator is expected to demonstrate an understanding of the process and the equipment operation. Typically there will be NO prerequisite competencies. The other 200 stream operations competencies should be used as a guide.

This competency does NOT include the operation of any packaged unit (regardless of its engineering complexity) which is covered by PMCOPS103B Operate equipment.

- fibre cement board
- plaster board
- scientific glass manufacture
- mineral earths
- aerated autoclave manufacture
- laminated glass manufacture
- coated sands
- ceramic crucibles manufacture
- plastic forming of clays.

- production equipment and associated equipment
- computers
- measuring and recording equipment
- communication equipment
- hand tools
- safety clothing and equipment.

This competency includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

- variations in materials
- monitoring and adjusting process conditions
- recognising and acting on potential and actual problems
- quality problems including customer requirements.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the equipment and product quality to customer specifications sufficient to recognise process conditions which will lead to out of specification production.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the equipment.

Competence includes the ability to:

- apply and/or explain:
 - hazards associated with the piece of equipment
 - application of the hierarchy of control in controlling the hazards
 - impact of materials and properties
 - start-up and shutdown processes
 - construction and limitations of the equipment
 - out of specification situations
- distinguish between causes of faults such as:
 - raw materials
 - mechanical
 - electrical instrumental

as is relevant to the practical operation of the equipment.

Critical aspects

It is essential that the equipment be understood and that the importance of critical material properties, settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- hazards are identified and controlled
- process conditions are maintained within limits
- quality is monitored to minimise wastage
- start-up and shutdown occurs first time
- signals and alarms are responded to immediately
- process measurements are continually made or observed
- all OHS requirements are followed.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Concurrent assessment and prerequisite competencies

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Assessment method, context and resource implications

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCOPS202B

Unit Descriptor

Operate equipment to blend/mix materials

In a typical scenario, this competency covers the selection and blending/mixing of materials using blending/mixing equipment, including the rectification of routine problems.

This competency does NOT cover concrete mixing. The specific competency PMCOPS260B Batch mix concrete should be used.

Typically an operator would -

- select materials
- load and unload the blender/mixer
- conduct blending/mixing operations in accordance with instructions
- monitor the process to ensure product consistency
- identify and rectify operational problems
- ensure the work environment is maintained in a clean and hazard free manner
- conduct minor routine maintenance.

This competency is typically performed by operators working either independently or as part of a work team. At all times they would be liaising and cooperating with other members of the team.

This unit has no prerequisites.

No sector assigned

Unit Sector

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--------------------------------------|--|
| 1. Determine blend/mix requirements. | 1.1 Check work schedule/job specification/job card
1.2 Identify customer requirements and set parameters in accordance with standard procedures
1.3 Select correct type and quantity of materials
1.4 Meet all special requirements and specifications
1.5 Identify any material handling problems and take action in accordance with standard procedures
1.6 Update material records as appropriate. |
| 2. Control hazards. | 2.1 Identify hazards from the materials
2.2 Identify other hazards in blending/mixing work area
2.3 Assess the risks arising from those hazards
2.4 Implement measures to control those risks in line with <u>procedures</u> . |

- 3. Blend/mix materials.
 - 3.1 Set up, start and operate blending/mixing equipment as required by specifications and standard procedures
 - 3.2 Prepare and add materials to blender/mixer as required by specification and standard procedures
 - 3.3 Check that materials prepared match requirements
 - 3.4 Use ancillary equipment as required according to standard procedures
 - 3.5 Ensure equipment is operated in accordance with established enterprise procedures
 - 3.6 Blend/mix materials to obtain required results.

- 4. Monitor and record operation.
 - 4.1 Monitor equipment performance in accordance with work instructions and manufacturer's specifications
 - 4.2 Monitor non-conforming product against customer specifications
 - 4.3 Adjust and control equipment to ensure correct product quality
 - 4.4 Complete final inspection checks
 - 4.5 Complete appropriate records and logs.

- 5. Rectify routine problems.
 - 5.1 Identify the range of faults that can occur during the operation
 - 5.2 Determine and rectify fault causes in accordance with procedures/work instructions
 - 5.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
 - 5.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
 - 5.5 Identify non-routine problems and report to designated person.

- 6. Maintain blending/mixing plant and area.
 - 6.1 Keep area and equipment clean and in good order
 - 6.2 Unload and shut down equipment as required
 - 6.3 Respond to routine faults according to enterprise procedures
 - 6.4 Report non-routine faults according to enterprise procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	1

RANGE STATEMENT

This unit of competency includes all such items of equipment and unit operations which form part of a discrete blending/mixing system.

- pumps (lubrication and cooling pumps)
 - utilities and services
 - heat exchangers (intercoolers)
 - vibration monitoring
 - other equipment integral to the operation of the compressor system.
-
- equipment malfunction
 - material handling such as equipment failure, blockages, and so on
 - material property variation
 - blend/ mix tolerance
 - uniform dispersion of minor ingredients/additives
 - blending/mixing to special requirements/colour
 - mixing sequence
 - matching mixes produced with production requirements
 - monitoring and adjusting process conditions
 - recognising and acting on potential and actual problems
 - quality problems including customer requirements.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency (eg, elements 1 to 5). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of 'what if' scenarios both on the plant (during demonstration of normal operations and walk-throughs of abnormal operations) and off the plant.

Critical aspects

It is essential that the equipment be understood and that the importance of critical material properties, settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- hazards are identified and controlled
- blend/mix properties are kept within limits
- quality is monitored to minimise wastage
- process measurements/observations are continually made
- all OHS requirements are followed
- problems are anticipated and appropriate action is taken (ie, problem fixed or reported).

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk-through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

It may be appropriate to assess this unit in conjunction with:

- PMCSUP272A Identify and act upon hazards in the workplace
- PMCSUP170B Shift materials safely.

If manual handling forms part of this job then regulatory obligations will require competency in PMCSUP170A also.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Essential knowledge

Knowledge and understanding of the equipment and product quality to customer specifications sufficient to recognise process conditions which will lead to out of specification production.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the equipment.

Competence includes the ability to:

- apply and describe:
 - hazards associated with the process
 - application of the hierarchy of control in controlling the hazards
 - selection, use and maintenance of relevant PPE
 - material handling requirements
 - principles of blending/mixing these products
 - impact of variations in materials on final product
 - impact of blending/mixing on final product
 - impact of variations in product specification of the blending/mixing process
 - properties of the mix
 - equipment limitations and impact on blending/mixing efficiency and effectiveness
 - enterprise production schedules
- distinguish between causes of faults such as:
 - material
 - equipment
 - blending/mixing time/technique

as is relevant to the practical operation of the equipment.

PMCOPS203B**Unit Descriptor****Operate grinding equipment**

In a typical scenario, an operator looks after the preparation of materials for grinding; grinding of materials; and distribution of ground materials. This competency unit applies to the grinding and size reduction of raw materials, materials in process, product and scrap/recycled material.

It includes:

- quarried materials
- cement clinker
- lime
- ceramics and clay
- ground minerals
- glass
- concrete waste
- fibre cement.

Typically an operator would:

- ensure that the appropriate materials are being fed into the grinding process
- facilitate the maintenance of a safe working environment
- monitor the grinding process
- check that product discharge is occurring without interference
- identify and rectify operational problems
- facilitate output changes
- identify and react to hazards in the workplace.

This competency is typically performed by operators working either independently or as part of a work team. At all times they would be liaising with other members of the team.

This unit has no prerequisites.

No sector assigned

Unit Sector

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to grind materials.	1.1 Check equipment for hazards, danger and isolation tags in accordance with standard operating procedures 1.2 Perform checks to ensure all doors, inspection openings and guards are in position and secure 1.3 Make adjustments to equipment settings to ensure conformance with standard operating procedures 1.4 Notify appropriate personnel of intention to start equipment 1.5 Conduct additional pre-start checks as required in accordance with standard operating procedures 1.6 Ensure an adequate supply of materials is available to meet production requirements.
2. Grind materials.	2.1 Start equipment in sequence in accordance with standard operating procedures 2.2 Monitor instrument/control panels and adjust as necessary to remain within specified operating parameters 2.3 Make physical inspections of plant and equipment at specified intervals to identify any anomalies in standard operating procedures 2.4 Maximise product throughput and efficiency to maintain target parameters 2.5 Communicate with appropriate personnel regarding the status of operations in line with enterprise requirements 2.6 Employ safe working practices which conform with OHS and enterprise requirements 2.7 Shut down equipment in accordance with procedures and complete required records.
3. Rectify routine problems.	3.1 Identify the range of faults that can occur during the operation 3.2 Determine and rectify fault causes by procedures/work instructions 3.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions 3.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions 3.5 Identify non-routine problems and report to designated person.
4. Distribute ground product.	4.1 Distribute ground materials to their correct silo/storage area in accordance with standard operating procedures 4.2 Monitor silo/storage areas to ensure compliance with enterprise storage quality/quantity requirements.
5. Control hazards.	5.1 Identify hazards in the grinding work area 5.2 Assess the risks arising from those hazards 5.3 Implement measures to control those risks in line with <u>procedures</u> 5.4 Shut down in an emergency as required.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	1
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This unit of competency includes all such items of equipment and unit operations which form part of the grinding system.

- ball mills
- hammer mills
- roller mills
- pans
- edge mills
- other equipment integral to the operation of the grinding system.

- out of specification grinding media
- variations in temperature and moisture
- variations in feed
- product discharge problems.

The identification and control of hazards and the application of OHS is to be in accordance with current, applicable legislation and regulations, and company procedures. All work is carried out at all times in accordance with these requirements.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency (eg, elements 1 and 2). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of 'what if' scenarios both on the plant (during demonstration of normal operations and walk-throughs of abnormal operations) and off the plant.

Critical aspects

It is essential that the equipment and process be understood and that the importance of critical material properties is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in reporting the condition to the appropriate individual.

Consistent performance at the required standard should be demonstrated. In particular look to see that:

- types of materials to be ground and their additives are identified
- individual material feed and distribution systems are understood
- OHS and safe work practices are followed
- signage, tags and isolation procedures are followed
- basic maintenance and inspection practices are carried out.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Essential knowledge

Knowledge and understanding of the grinding process sufficient to recognise process conditions which will lead to out of specification production and to take appropriate action.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the grinding equipment.

Competence includes the ability to:

- apply and/or explain:
 - start-up and shutdown processes
 - construction and limitations of the grinding equipment and conditions
 - grinding fundamentals
 - out of specification situations
 - physics and chemistry (where appropriate) of process
 - principles of operation of process
 - control philosophy of process
- distinguish between causes of faults such as:
 - raw material variations
 - mechanical abnormalities
 - electrical/instrument reading variations

as is relevant to the practical operation of the grinding process.

PMCOPS204B

Unit Descriptor

Prepare for production

This competency covers a range of checks required before preparation of raw materials used in the manufacturing process. This competency is typically performed by operators working either independently or as part of a team.

In a typical scenario an operator prepares and selects materials required to meet the production schedule. The operator is involved in the selection, sampling and weighing of raw materials and other materials prior to production. The operator will have the ability to read schedules, recipes and order slips and be able to work out the quantities (for example the number of bags to meet the recipe requirement).

Unit Sector

This unit has no prerequisites.

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|-----------------------------------|---|
| 1. Check production plan. | 1.1 Identify the type of product required, time to run and raw/reclaim materials required
1.2 Check for quantity and quality required and any special requirements
1.3 Check with supervisor/appropriate person if requirements are 'unusual'. |
| 2. Identify hazards. | 2.1 Identify hazards of materials to be used
2.2 Identify hazards in work area
2.3 Implement hazard controls according to procedures
2.4 Report safety concerns according to procedures. |
| 3. Assemble raw materials. | 3.1 Order and check quantities of materials required
3.2 Sample and test materials as required
3.3 Visually check that materials are free from contamination and suitable for production
3.4 Report contamination or other non-conformance. |
| 4. Check machinery and equipment. | 4.1 Check required program
4.2 Check machinery/equipment for operation
4.3 Correct or report maintenance requirements as appropriate
4.4 Check that equipment has been test run
4.5 Check that equipment is set and adjusted according to production schedule as required. |
| 5. Rectify routine problems. | 5.1 Identify the range of faults that can occur during the operation
5.2 Determine and rectify fault causes by procedures
5.3 Identify and rectify equipment failure causes to <u>procedures</u>
5.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures
5.5 Identify non-routine problems and report to designated person. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency may apply to any of the sectors of the manufactured mineral products industry.

This competency unit applies to a variety of equipment and machinery and may include any processing plant or equipment such as any listed in other competencies in the Training Package.

This competency includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

- visual checks for damage
- leaks
- obstructions
- blockages
- component wear.

- contaminated materials
- raw material not to specifications
- material variability within specification
- equipment malfunctions.

Raw materials may include first stage products being prepared for subsequent processes.

All operations are performed to procedures.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case study/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, those parts of element 1 referring to 'unusual' requirements). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

It is essential that the process be understood and that the importance of critical material properties and settings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- hazards are identified and controls applied
- early warning signs of equipment in need of attention/with potential problems are recognised
- action is taken to ensure equipment is returned to full performance in a timely manner
- communication is timely and effective
- problems regarding materials are anticipated and appropriate action is taken.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Essential knowledge

Knowledge and understanding of the equipment and production process sufficient to recognise variance from specification and then determine appropriate action which is consistent with operating guidelines.

Knowledge of the enterprise's procedures and relevant regulatory requirements, along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the equipment and production process.

Competence includes the ability to:

- apply and/or explain:
 - testing procedures
 - impact of contamination
 - production schedules
 - hazards normally associated with the process and controls as per the hierarchy of control
- distinguish between causes of faults such as:
 - products
 - materials
 - equipment

as is relevant to the practical operation of the equipment and production process.

PMCOPS205B

Process greenware/green products

Unit Descriptor

This competency covers the drying, preparation and other processing of greenware or green products, including the operation of equipment and the rectification of routine problems. This competency is typically performed by operators working either independently or as part of a team.

In a typical scenario the operator prepares equipment and racks for the stacking, drying and curing of green products. The requirements are read from the production schedule and the operator is able to stack greenware to allow efficient drying and curing. This competency does not cover the firing of products in a kiln or similar firing equipment. It does cover warmed or heated curing areas.

Unit Sector

This unit has no prerequisites
No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Prepare the equipment. | 1.1 Determine the requirements from the production program
1.2 Identify and set up the racks, shelves or trolleys
1.3 Ensure the equipment is safe for use. |
| 2. Control hazards. | 2.1 Identify hazards from the job to be done
2.2 Identify other hazards in the work area
2.3 Assess the risks arising from those hazards
2.4 Implement measures to control those risks in line with procedures. |
| 3. Load products for drying/
curing. | 3.1 Stack or set products to specification
3.2 Ensure correct stacking pattern is used
3.3 Allow adequate space around each item
3.4 Use available space effectively. |
| 4. Dry/cure products. | 4.1 Monitor drying equipment and test products to determine correct conditions
4.2 Adjust temperature and humidity to maintain correct conditions
4.3 Remove product from the area and store appropriately. |
| 5. Finish green products. | 5.1 Finish products to specifications
5.2 Ensure condition of product is acceptable
5.3 Store products in appropriate area
5.4 Repair product and/or report product faults to the designated person. |

- 6. Rectify routine problems.
 - 6.1 Identify the range of faults that can occur during the operation
 - 6.2 Determine and rectify fault causes in accordance with procedures
 - 6.3 Identify and rectify equipment failure causes to procedures
 - 6.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures
 - 6.5 Identify non-routine problems and report to designated person.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

- clay and ceramics products prior to firing
- fibre reinforced cement products prior to autoclaving
- concrete products such as masonry curing.

- hand tools
- templates
- drying area, cabinets, tunnel, curing 'kiln'
- transfer cars, kiln cars, trolleys, shelving or racks
- temperature measuring equipment
- moisture measuring equipment (eg, infra-red moisture meter).

- brushing
- dressing
- fettling
- finishing
- sanding
- sponging
- stacking
- edge trimming.

- inspecting and finishing to ensure surfaces are to specification
- ensuring moisture content is within requirements
- ensuring product strength has been obtained
- temperature and humidity control
- distribution of product in drying/curing area.

All operations are performed to procedures.

The identification and control of hazards and the application of OHS is to be in accordance with current, applicable legislation and regulations, and company procedures. All work is carried out at all times in accordance with these requirements.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, those parts of element 1 referring to safety of equipment). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

Competence must be demonstrated in the ability to recognise situations requiring action and then in implementing appropriate corrective action. Consistent performance should be demonstrated. In particular look to see that:

- greenware is ready for next stage of the process
- drying achieves the specified moisture content
- curing achieves the specified strength
- drying/curing area loaded to requirements
- temperature and humidity are within limits
- product waste levels are low.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications	Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.
Other assessment advice	This unit has no prerequisite competencies. Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.
Essential knowledge	<p>Knowledge and understanding of the equipment and process sufficient to recognise conditions which will lead to out of specification product.</p> <p>Knowledge of the enterprise's <u>procedures</u> and relevant regulatory requirements along with the ability to implement them within time constraints and in a manner relevant to the operation of the equipment.</p> <p>Competence includes the ability to:</p> <ul style="list-style-type: none">• apply and/or describe:<ul style="list-style-type: none">• surface finish requirements and terms• nature and purpose of the drying/curing stage• importance of correct moisture content• importance of correct temperature and air circulation• consequences of poor stacking• distinguish between causes of faults such as:<ul style="list-style-type: none">• dryer/curing 'kiln'• air flow/temperature• materials <p>as is relevant to the practical operation of the equipment.</p>

PMCOPS206B

Operate an autoclave

Unit Descriptor

This competency covers the operation of autoclaves including identifying and isolating equipment malfunctions.

This competency is typically performed by operators working either independently or as part of a work team.

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Prepare the equipment for production. | 1.1 Conduct equipment pre-start-up procedure and visual checks according to enterprise procedure
1.2 Set up and configure equipment start-up function in accordance with procedures/work instructions
1.3 Load raw materials onto autoclave cars in accordance with procedures/work instructions
1.4 Charge materials into autoclave and close and secure the vessel in accordance with procedures/work instructions. |
| 2. Operate equipment. | 2.1 Start up equipment in accordance with procedures/work instructions
2.2 Ensure equipment is operated in accordance with established enterprise procedures. |
| 3. Monitor and record operation. | 3.1 Monitor equipment performance in accordance with work instructions and manufacturer's specifications
3.2 Monitor operating pressures and temperatures
3.3 Adjust and control equipment to ensure correct product quality
3.4 Complete appropriate records and logs. |
| 4. Rectify routine problems. | 4.1 Identify the range of faults that can occur during the operation
4.2 Determine and rectify fault causes by procedures/work instructions
4.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
4.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
4.5 Identify non-routine problems and report to designated person. |

- 5. Shut down equipment.
 - 5.1 Shut down equipment and depressurise vessel in accordance with work instructions
 - 5.2 Open the vessel and discharge cured product
 - 5.3 Complete appropriate records and logs
 - 5.4 Ensure autoclave cars are clear of all product and left ready for reuse
 - 5.5 Shut down equipment in an emergency situation.
- 6. Prepare equipment for maintenance.
 - 6.1 Isolate equipment in accordance with work instructions
 - 6.2 Remove any broken materials safely
 - 6.3 Make sure area is clear and safe for maintenance.
- 7. Control hazards.
 - 7.1 Identify hazards from the autoclave
 - 7.2 Identify other hazards in autoclave area
 - 7.3 Assess the risks arising from those hazards
 - 7.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	1

RANGE STATEMENT

This competency includes the operation of autoclaves in the glass, cement, clay, ceramic and fibre-cement industries. It also includes all ancillary equipment and operation of plant using PLCs where appropriate.

- nature and type of plant configuration
- nature and type of material or product to be autoclaved
- safe work practices and the use of protective clothing, hard hats and safety glasses.

- vessel door closing and locking equipment
- vessel cars
- steam and pressure generation equipment.

- instrument panels (local)
- measuring and/or recording equipment
- communication equipment.

- equipment malfunctions
- temperature or pressure fluctuations
- product quality variations
- material/feed variations
- vessel pressure losses.

This competency includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the plant and the equipment sufficient to recognise variances in the process conditions and the equipment which will lead to out of specification production.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements, along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the equipment.

Competence includes the ability to:

- apply and/or explain:
 - isolation procedures
 - operational processes and functions, including start up and shut down processes
 - composition and nature of finished product
 - construction and limitations of the equipment
 - out of specification situations
- distinguish between:
 - types of defects/faults
 - electrical/instrumental causes of malfunctions

as is relevant to the practical operation of the equipment.

Critical aspects

It is essential that the equipment and the process be understood and that the importance of critical settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- start-up and shutdown procedures are applied without variation
- signals and alarms are responded to immediately
- isolation procedures for maintenance are followed
- all OHS requirements are followed.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Concurrent assessment and prerequisite competencies

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Assessment method, context and resource implications

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

Resource implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method.

PMCOPS207A

Heat accelerate the curing of precast concrete

Unit Descriptor

This competency covers high and low pressure steam curing of precast concrete pipes and products, including identifying and isolating equipment malfunctions.

In an autoclave environment, substitute chamber' for autoclave vessel'.

This competency is typically performed by operators working either independently or as part of a work team.

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Prepare the equipment for production. | <ul style="list-style-type: none"> 1.1 Conduct equipment pre-start-up procedure and visual checks according to enterprise procedures 1.2 Set up and configure equipment start up function in accordance with procedures/work instructions 1.3 Ensure appropriate presetting period has been observed 1.4 Load mould (containing green concrete product) onto transfer car and move to steam chamber in accordance with procedures/work instructions 1.5 Cover mould as specified 1.6 Close and secure the steam chamber in accordance with procedures/work instructions. |
| 2. Operate equipment. | <ul style="list-style-type: none"> 2.1 Start up equipment in accordance with procedures/work instructions 2.2 Ensure equipment is operated in accordance with established enterprise procedures. |
| 3. Monitor and record operation. | <ul style="list-style-type: none"> 3.1 Monitor equipment performance in accordance with work instructions and manufacturer's specifications 3.2 Monitor operating pressures and temperatures 3.3 Ensure the rate at which the concrete temperature increases is even, and that it doesn't exceed maximum temperature specified 3.4 Adjust and control equipment to ensure correct product quality 3.5 Complete appropriate records and logs. |

- 4. Rectify routine problems.
 - 4.1 Identify the range of faults that can occur during the operation
 - 4.2 Determine and rectify fault causes by procedures/work instructions
 - 4.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
 - 4.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
 - 4.5 Identify non-routine problems and report to designated person.

- 5. Shut down equipment.
 - 5.1 Shut down steam and depressurise chamber in accordance with work instructions
 - 5.2 Allow product to cool gradually and evenly
 - 5.3 Open the chamber and discharge cured product
 - 5.4 Complete appropriate records and logs
 - 5.5 Ensure transfer cars are clear of all product and left ready for reuse
 - 5.6 Shut down equipment in an emergency situation.

- 6. Prepare equipment for maintenance.
 - 6.1 Isolate equipment in accordance with work instructions
 - 6.2 Remove any broken materials safely
 - 6.3 Make sure area is clear and safe for maintenance.

- 7. Control hazards.
 - 7.1 Identify hazards from the job to be done
 - 7.2 Identify other hazards in the work area
 - 7.3 Assess the risks arising from those hazards
 - 7.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	1

RANGE STATEMENT

This competency includes the operation of various steam chambers for the curing of concrete products and pipes. It also includes operation of all ancillary equipment and operation of plant using programmable logic controllers (PLCs) where appropriate.

- nature and type of plant configuration
- nature of curing process (eg, hot water, low pressure steam, high pressure steam, autoclaving)
- nature and type of steam chamber (eg, tarpaulin cover, steam chamber, autoclave)
- nature and type of product to be cured
- safe work practices and the use of protective clothing, hard hats and safety glasses.

The performance of this competency may be governed at times by strict specifications (eg, for construction of bridges in NSW refer to RTA's specification B80 - concrete work for bridges).

- chamber doors and locking equipment
 - transfer cars to fill chambers
 - steam and pressure generation equipment
 - pressure and temperature gauges.
-
- instrument panels (local)
 - measuring and/or recording equipment
 - communication equipment
 - tarpaulins used to cover concrete.
-
- equipment malfunctions
 - temperature or pressure fluctuations
 - product quality variations
 - material/feed variations
 - chamber pressure losses.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Critical aspects

It is essential that the equipment and the process be understood and that the importance of critical settings and readings are known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- start up and shut down procedures are applied without variation
- signals and alarms are responded to immediately
- isolation procedures for maintenance are followed
- all OHS requirements are followed.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Resource implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

Essential knowledge and enterprise requirements

Knowledge and understanding of the plant and the equipment sufficient to recognise variances in the process conditions and the equipment which will lead to out of specification production.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements, along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the equipment.

Competence includes the ability to:

- apply and/or explain:
 - isolation procedures
 - operational processes and functions, including start up and shut down processes
 - composition and nature of finished product
 - construction and limitations of the equipment
 - out of specification situations
- distinguish between:
 - types of defects/faults
 - electrical/instrumental causes of malfunctions

as is relevant to the practical operation of the equipment.

PMCOPS208A

Unit Descriptor

Operate crushing equipment

In a typical scenario, an operator looks after the crushing and screening of materials. This competency unit applies to the crushing and screening of raw materials, materials in process, product and scrap/recycled material.

It includes:

- quarried materials
- feedstock
- waste materials
- ground minerals industries
- concrete waste.

Typically an operator would:

- ensure that the appropriate materials are being fed into the crushing process
- facilitate the maintenance of a safe working environment
- monitor the crushing process
- check that product discharge is occurring without interference
- identify and rectify operational problems
- facilitate output changes
- identify and react to hazards in the workplace.

This competency is typically performed by operators working either independently or as part of a work team. At all times they would be liaising with other members of the team.

This unit has no prerequisites.

No sector assigned

Unit Sector

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--------------------------------|---|
| 1. Prepare to crush materials. | 1.1 Check equipment for hazards, danger and isolation tags in accordance with standard operating procedures
1.2 Perform checks to ensure all doors, inspection openings and guards are in position and secure
1.3 Make adjustments to equipment settings to ensure conformance with standard operating procedures
1.4 Notify appropriate personnel of intention to start equipment
1.5 Conduct additional pre-start checks as required in accordance with standard operating procedures
1.6 Ensure an adequate supply of materials is available to meet production requirements. |
|--------------------------------|---|

- 2. Crush materials.
 - 2.1 Start equipment in sequence in accordance with standard operating procedures
 - 2.2 Monitor instrument/control panels and adjust as necessary to remain within specified operating parameters
 - 2.3 Make physical inspections of plant and equipment at specified intervals to identify any anomalies in standard operating procedures
 - 2.4 Maximise product throughput and efficiency to maintain target parameters
 - 2.5 Check screens and screened material to procedures
 - 2.6 Communicate with appropriate personnel regarding the status of operations in line with enterprise requirements
 - 2.7 Make adjustments as appropriate to achieve required output
 - 2.8 Employ safe working practices which conform with OHS and enterprise requirements
 - 2.9 Distribute material as required.

- 3. Rectify routine problems.
 - 3.1 Identify the range of faults that can occur during the operation
 - 3.2 Determine and rectify fault causes by procedures/work instructions
 - 3.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
 - 3.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
 - 3.5 Identify non-routine problems and report to designated person.

- 4. Control hazards.
 - 4.1 Identify hazards in the grinding work area
 - 4.2 Assess the risks arising from those hazards
 - 4.3 Implement measures to control those risks in line with procedures and duty of care.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	1
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This unit of competency includes all such items of equipment and unit operations which form part of the grinding system.

- jaw crushers
 - cone crushers
 - grizzlies
 - grids
 - other equipment integral to the operation of the crushing system.
-
- difficult material to be crushed
 - variations in temperature and moisture
 - variations in feed
 - product discharge problems
 - blocked screens
 - oversized feed.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency (eg, elements 1 and 2). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of 'what if' scenarios both on the plant (during demonstration of normal operations and walk-throughs of abnormal operations) and off the plant.

Critical aspects

It is essential that the equipment and process be understood and that the importance of critical material properties is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in reporting the condition to the appropriate individual.

Consistent performance at the required standard should be demonstrated. In particular look to see that:

- types of materials to be crushed are identified
- individual material feed and distribution systems are understood
- OHS and safe work practices are followed
- signage, tags and isolation procedures are followed
- basic maintenance and inspection practices are carried out.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Essential knowledge

Knowledge and understanding of the crushing process sufficient to recognise process conditions which will lead to out of specification production and to take appropriate action.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the grinding equipment.

Competence includes the ability to:

- apply and/or explain:
 - start-up and shutdown processes
 - construction and limitations of the crushing equipment and conditions
 - crushing fundamentals
 - out of specification situations
 - physics and chemistry (where appropriate) of process
 - principles of operation of process
 - principles of control of process
- distinguish between causes of faults such as:
 - raw material variations
 - mechanical abnormalities
 - electrical/instrument reading variations

as is relevant to the practical operation of the grinding process.

PMCOPS210B

Unit Descriptor

Operate a Calcining kiln

In a typical scenario, a plant operator in a large plant looks after the operation of cement making and lime making kilns, and can cover similar calcining operations such as making plaster. It includes identifying and isolating equipment malfunctions.

The type of operation will depend on:

- nature and type of plant configuration
- type of manufacturing process as to whether wet, dry, or semi-dry.

Typically an operator would:

- conduct safety and system checks prior to equipment start-up
- ensure feedstock is available and in a condition to fed into the kiln
- start up or shut down the process or check on progress of the process
- monitor the process and keep records
- identify and rectify operational problems
- facilitate output changes.

This competency is typically performed by operators working either independently or as part of a work team. At all times they would be liaising with other members of the team.

This unit does NOT require the operation of a central control panel.

This unit has no prerequisites.

No sector assigned

Unit Sector

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Prepare the equipment for production. | 1.1 Conduct equipment pre-start-up procedure and visual checks according to enterprise procedure checklist
1.2 Set up and configure equipment start up function complying with procedures/work instructions
1.3 Load raw materials in accordance with work instructions. |
| 2. Operate equipment and check on support equipment. | 2.1 Start up equipment in accordance with work instructions
2.2 Ensure equipment is operated in accordance with established enterprise procedures
2.3 Check on the operation of support equipment such as grinding mills, pneumatics pumps, slurry pumps, dust collectors, mixing and blending silos, vibrating screens, rotary kilns; and on bulk storage silos. |
| 3. Monitor and record operation. | 3.1 Monitor equipment performance in accordance with work instructions and manufacturer's specifications
3.2 Monitor non-conforming product against customer specifications
3.3 Adjust and control equipment to ensure correct product quality
3.4 Complete final inspection checks
3.5 Complete appropriate records and logs. |

- 4. Rectify routine problems.
 - 4.1 Identify the range of faults that can occur during the operation
 - 4.2 Determine and rectify fault causes by procedures/work instructions
 - 4.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
 - 4.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
 - 4.5 Identify non-routine problems and report to designated person.

- 5. Shut down equipment.
 - 5.1 Ensure line is clear of all product and left ready for start-up
 - 5.2 Shut down equipment in accordance with work instructions
 - 5.3 Complete appropriate records and logs
 - 5.4 Shut down equipment in an emergency situation.

- 6. Prepare equipment for maintenance.
 - 6.1 Isolate equipment in accordance with work instructions
 - 6.2 Remove any broken materials safely
 - 6.3 Make sure area is clear and safe for maintenance.

- 7. Control hazards.
 - 7.1 Identify hazards in the calcining work area
 - 7.2 Assess the risks arising from those hazards
 - 7.3 Implement measures to control those risks in line with procedures and duty of care.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	1
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

This unit of competency includes all such items of equipment and unit operations which form part of the kiln system.

- instrument panels (local)
- measuring and recording equipment
- communication equipment
- hand tools
- emergency stop buttons and lanyards
- safety clothing and equipment.

- equipment malfunctions
- temperature fluctuations
- quality of product
- material/feed variations
- spillages and leakages.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency (eg, elements 1 to 5).

Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of 'what if' scenarios both on the plant (during demonstration of normal operations and walk-throughs of abnormal operations) and off the plant.

Critical aspects

It is essential that the equipment and the process be understood and that the importance of critical settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- start up and shut down occurs first time
- signals and alarms are responded to immediately
- all OHS requirements are followed.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Essential knowledge

Knowledge and understanding of the plant and the equipment sufficient to recognise variances in the process conditions and the equipment which will lead to out of specification production.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements, along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the equipment.

Competence includes the ability to:

- apply and/or explain:
 - isolation procedures
 - chemistry and physics of cement/lime making processes
 - operational processes and functions, including start up and shut down processes
 - composition and nature of raw materials and finished product
 - construction and limitations of the equipment
 - out of specification situations
- distinguish between:
 - raw materials
 - equipment
 - types of defects/faults
 - electrical/instrumental causes of malfunctions

as is relevant to the practical operation of the plant.

PMCOPS220B

Unit Descriptor

Operate slip casting equipment

This competency covers the operation of slip casting equipment used for production of clay and ceramic products, including the rectification of problems.

In a typical scenario an operator follows procedures to make slip cast products. The operator is able to read product specifications and job sheets (or other production schedule documentation) to determine the requirements of the product. The final shape, thickness and finish of the product are measured, gauged or determined by the operator. This competency is typically performed by operators working either independently or as part of a team.

Unit Sector

This unit has no prerequisites.

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|-----------------------------------|---|
| 1. Prepare the forming equipment. | <ul style="list-style-type: none"> 1.1 Determine the product formation requirements from the production program 1.2 Ensure the required moulds are in place 1.3 Ensure the equipment is set up and prepared as required 1.4 Ensure the required raw materials are selected and poured or connected to the equipment 1.5 Ensure the equipment is safe to use. |
| 2. Operate forming equipment. | <ul style="list-style-type: none"> 2.1 Operate equipment to produce product, ensuring: <ul style="list-style-type: none"> 2.1.1 specified thickness is achieved 2.1.2 proper casting time is allowed 2.1.3 excess slip is removed 2.2 Remove product from the mould, ensuring: <ul style="list-style-type: none"> 2.2.1 condition of the product is acceptable 2.2.2 mould condition is acceptable for reuse 2.2.3 enterprise procedures are followed 2.2.4 equipment is cleaned and readied for reuse 2.3 Monitor and adjust slip properties as required 2.4 Transfer product to drying racks/ conveyor/trucks as required 2.5 Record production data as required. |
| 3. Rectify routine problems. | <ul style="list-style-type: none"> 3.1 Identify the range of faults that can occur during the operation 3.2 Determine and rectify fault causes by procedures 3.3 Identify and rectify equipment failure causes to procedures 3.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures 3.5 Identify non-routine problems and report to designated person. |

- 4. Control hazards.
 - 4.1 Identify hazards from the job to be done
 - 4.2 Identify other hazards in the work area
 - 4.3 Assess the risks arising from those hazards
 - 4.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency unit includes the operation of equipment used for the casting of clay and ceramic products.

- casting (including medium pressure casting)
- punching
- palleting
- sponging and fettling
- use of hand tools.

This competency includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

This unit was developed for larger production contexts but it may also be relevant to craft practitioners producing ceramic work.

- drying
- firing
- finishing operations.

- checking for mould deterioration
- slip consistency
- product wall thickness
- identifying piece faults.

All operations are performed to procedures.

EVIDENCE GUIDE**Assessment context and methods**

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case study/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, those parts of element 2 referring to out of range readings). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

Competence must be demonstrated in the ability to recognise situations requiring action and then in implementing appropriate corrective action. Consistent performance should be demonstrated. In particular look to see that:

- moulds are clean and ready
- slip is applied correctly
- excess slip is removed as required
- cast is removed cleanly
- mould life is preserved
- formed product meets requirements.
- material handling methods and waste levels are consistent to standards.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

This unit has no prerequisite competencies.

This unit may be assessed in conjunction with:

PMCSUP180A Organise self

PMCSUP181A Work in a team.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Essential knowledge

Knowledge and understanding of the casting equipment sufficient to recognise conditions which will lead to out of specification product.

Knowledge of the enterprise's procedures and relevant regulatory requirements along with the ability to implement them within time constraints and in a manner relevant to the operation of the casting equipment.

Competence includes the ability to:

- apply and/or describe:
 - slip casting process
 - mould purpose and fundamentals
 - determining correct wall thickness
 - slip consistency and properties
- distinguish between causes of faults such as:
 - mould condition
 - equipment malfunction
 - mould removal
 - slip consistency

as is relevant to the practical operation of the equipment.

PMCOPS221B

Unit Descriptor

Operate manual glazing equipment

This competency covers the operation of manual glazing and decorating equipment used for clay and ceramic product production.

In a typical scenario an operator operates glazing, printing and finishing equipment to complete fired products. The operator is able to read and interpret production schedules and product specifications. The work is completed in accordance with procedures, including problem solving. This competency is typically performed by operators working either independently or as part of a team.

Unit Sector

This unit has no prerequisites.

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Prepare glazing and decorating equipment. | 1.1 Determine glazing and decorating requirements from production schedule
1.2 Ensure equipment is adjusted as required
1.3 Ensure glaze or surface materials are connected to equipment
1.4 Ensure equipment is safe to use. |
| 2. Apply glaze or surface materials to formed products. | 2.1 Set up glaze application for operation
2.2 Apply glaze to produce the specified thickness
2.3 Recover excess or spilt glaze for treatment or recycling
2.4 Shut down and unload equipment at conclusion of glazing to procedures, ensuring that products are stored in the appropriate area. |
| 3. Print fired products. | 3.1 Operate printing equipment to produce a correctly registered decoration
3.2 Report printing equipment faults to the designated person
3.3 Shut down and unload equipment at conclusion of printing to specifications, ensuring that products are stored in the appropriate area. |
| 4. Repair glaze faults. | 4.1 Apply glaze repair techniques to produce a properly finished product
4.2 Ensure all glaze faults are removed
4.3 Ensure repaired area is reglazed with the specified glaze
4.4 Clear work area at the conclusion of the glaze repairing to procedures, ensuring products are stored in the appropriate area. |

- 5. Rectify routine problems.
 - 5.1 Identify the range of faults that can occur during the operation
 - 5.2 Determine and rectify fault causes according to procedures
 - 5.3 Identify and rectify equipment failure causes according to procedures
 - 5.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures
 - 5.5 Identify non-routine problems and report to designated person.

- 6. Control hazards.
 - 6.1 Identify hazards from the job to be done
 - 6.2 Identify other hazards in the work area
 - 6.3 Assess the risks arising from those hazards
 - 6.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

- sanitary ware
- bathroom fittings
- insulators
- cups, saucers
- tiles
- bricks

- belt feed hopper
- dipping equipment
- hand spray equipment
- screen printers
- silk screens
- vibrating hoppers

- decorating
 - dry glaze/material
 - glaze fault repair
 - manual dip
 - manual spray
 - oversand spraying
 - reglaze (repaired products)
 - silk screen printing
 - waterfall/flinger/bell
 - wet glaze/material
-
- artwork
 - colours
 - cover coat
 - dry glaze dusts
 - frits
 - glazed products
 - liquid glaze
 - paints
 - sand
 - slurry.

This unit was developed for larger production contexts but it may also be relevant to craft practitioners producing ceramic work.

- product forming and drying
 - product firing
 - setting up automated glazing equipment.
-
- glaze application faults (eg, non-adherence or runs)
 - applicator equipment problems
 - product surface unsuitable for glaze application
 - glaze consistency
 - contamination.

All operations are performed to procedures.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case study/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, those parts of element 4 referring to glaze repair techniques). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

Competence must be demonstrated in the ability to recognise situations requiring action and then in implementing appropriate corrective action. Consistent performance should be demonstrated. In particular look to see that:

- glaze application is within requirements
- equipment is used as required
- glazing faults are recognised and categorised correctly.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

This unit has no prerequisites.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Essential knowledge

Knowledge and understanding of the glazing and decorating equipment sufficient to recognise conditions which will lead to out of specification product.

Knowledge of the enterprise's procedures and relevant regulatory requirements along with the ability to implement them within time constraints and in a manner relevant to the operation of the glazing and decorating equipment.

Competence includes the ability to:

- apply and/or describe:
 - glaze composition and function
 - decal construction and application techniques
 - glaze application techniques (including hand dipping and spraying)
- distinguish between causes of problems such as:
 - product surface condition
 - equipment problems
 - glaze properties

as is relevant to the practical operation of the equipment.

PMCOPS222B

Prepare materials for clay and ceramic production

Unit Descriptor

This competency covers the operation of equipment used to prepare a range of raw materials used in clay and ceramic product production. This competency is typically performed by operators working either independently or as part of a team.

In a typical scenario an operator uses equipment to load and prepare clays and other materials for ceramic production. The operator is able to determine requirements and quantities of materials from the production schedule and product specifications. The operator determines the adjustments required to meet the production needs.

Unit Sector

This unit has no prerequisites.

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|----------------------------------|---|
| 1. Mix raw materials. | <ul style="list-style-type: none"> 1.1 Receive, sample and store raw materials as required 1.2 Load and start mixing equipment to procedures 1.3 Operate mixing equipment to produce materials as specified 1.4 Ensure mixing equipment is operated within specifications 1.5 Carry out routine maintenance to specifications 1.6 Unload and shut down mixing equipment to specifications 1.7 Store materials as required. |
| 2. Settle mixtures as required. | <ul style="list-style-type: none"> 2.1 Operate pumps and valves to move materials as required 2.2 Load materials into tank as required 2.3 Produce a properly settled mixture 2.4 Pump mixture to appropriate storage after treatment 2.5 Carry out routine maintenance to settling equipment to specifications 2.6 Report sediment status to designated person. |
| 3. Control moisture of mixtures. | <ul style="list-style-type: none"> 3.1 Operate equipment to produce clay with the correct moisture content 3.2 Carry out routine maintenance to moisture control equipment to specifications 3.3 Unload and shut down moisture control equipment as required 3.4 Store materials as required. |
| 4. Rectify routine problems. | <ul style="list-style-type: none"> 4.1 Identify the range of faults that can occur during the operation 4.2 Determine and rectify fault causes by <u>procedures</u> 4.3 Identify and rectify equipment failure causes to <u>procedures</u> 4.4 Make sure appropriate records and log books of equipment operations are maintained to meet <u>procedures</u> 4.5 Identify non-routine problems and report to designated person. |

- 5. Control hazards.
 - 5.1 Identify hazards from the job to be done
 - 5.2 Identify other hazards in the work area
 - 5.3 Assess the risks arising from those hazards
 - 5.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

- materials, such as -
- additives
- body materials
- glaze pigments and stains
- slip
- waste

- ball mill
- blunger
- bobcat
- box feeder
- filter press and filters
- fine rolls
- fork lift truck
- front end loader
- hammer mill
- hygrometer
- magnet
- mortar and pestle
- power consumption gauge
- pug mill
- rotameter
- sieves and screens
- spray drying tower
- storage room
- tanks and silos
- tempering machine
- thermometer
- timing equipment
- weighing equipment
- PLCs
- scrapper
- penetrometers
- balances
- infrared
- microwave

- batch
- continuous
- dry materials
- wet materials.

- bulk raw materials blending
- forming processes.

- adjustments to allow for materials variations
- equipment malfunction
- contamination.

All operations are performed to procedures.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, those parts of element 3 referring to carrying out routine maintenance). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

Competence must be demonstrated in the ability to recognise situations requiring action and then in implementing appropriate corrective action. Consistent performance should be demonstrated. In particular look to see that:

- raw materials are correctly selected
- preparation is as specified
- completed products meet specifications
- performance of materials is as required.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

This unit has no prerequisites.

This unit may be assessed in conjunction with:

- PMCOPS202B Operate equipment to blend/mix materials.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Essential knowledge

Knowledge and understanding of the raw materials preparation equipment sufficient to recognise conditions which will lead to out of specification product.

Knowledge of the enterprise's procedures and relevant regulatory requirements along with the ability to implement them within time constraints and in a manner relevant to the operation of the equipment.

Competence includes the ability to:

- apply and/or describe:
 - source and properties of typical raw materials
 - operation of the preparation equipment
 - consistency of the prepared materials
- distinguish between causes of faults such as:
 - material variations
 - specification or recipe tolerance
 - equipment malfunction

as is relevant to the practical operation of the equipment.

PMCOPS223B

Unit Descriptor

Finish products after firing

This competency covers the finishing operations for clay and ceramic products to prepare them for further processing or packaging.

In a typical scenario an operator carries out the final inspections, and repairs if necessary, to fired products. The operator is able to determine production requirements from documents (for example production schedules) and product requirements from product specifications and procedures.

Unit Sector

This unit has no prerequisites.

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|----------------------------------|--|
| 1. Inspect and sort products. | 1.1 Grade products to ensure enterprise standards are met, including:
1.2 colour is to standard
1.3 shape is satisfactory
1.4 structural appearance is to specification
1.5 surface finish is to specification
1.6 product is to specified size, squareness, profile, concentricity, straightness and flatness
1.7 Mark items with code to indicate grade/batch. |
| 2. Finish and assemble products. | 2.1 Apply finishing techniques to produce a properly finished product, as required
2.2 Assemble products to specification, as required. |
| 3. Rectify routine problems. | 3.1 Identify the range of faults that can occur during the operation
3.2 Determine and rectify fault causes in accordance with procedures/work instructions
3.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
3.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
3.5 Identify non-routine problems and report to designated person. |
| 4. Control hazards. | 4.1 Identify hazards from the job to be done
4.2 Identify other hazards in the work area
4.3 Assess the risks arising from those hazards
4.4 Implement measures to control those risks in line with procedures. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

all products after firing, such as -

- bisque
- glost
- decoration

materials from -

- adhesives
- cisterns
- inserts
- insulators
- jugs
- switch gear
- tiles
- tessellations
- pipes

processes including -

- foot polishing
- hand assembly
- measurements
- pin grinding
- sorting
- tile splitting

operation of all ancillary equipment including -

- automatic and manual foot polishers
- bench and hand grinders
- colour standards
- jigs
- rulers and tapes
- templates
- PLCs.

This unit was developed for larger production contexts but it may also be relevant to craft practitioners producing ceramic work.

- initial forming or firing
- packaging.

- determination of surface quality within specification
- repairing or scrapping of damaged parts.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, those parts of element 2 referring to out of range readings). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

Competence must be demonstrated in the ability to recognise situations requiring action and then in implementing appropriate corrective action. Consistent performance should be demonstrated. In particular look to see that:

- defects capable of rectification are recognised and dealt with
- defects unable to be rectified are identified and product rejected
- product is handled appropriately.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

This unit has no prerequisite competencies.

This unit may be assessed in conjunction with:

- PMCSUP180A Organise self
- PMCSUP181A Work in a team.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Essential knowledge

Knowledge and understanding of the equipment sufficient to recognise potential problems and to take appropriate action.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within time constraints and in a manner relevant to the operation of the equipment.

Competence includes the ability to:

- apply and/or describe:
 - attributes of in-specification product
 - types of manufacturing blemishes
 - use of finishing equipment
- distinguish between causes of faults such as:
 - forming
 - firing
 - finishing

as is relevant to the practical operation of the equipment/process.

PMCOPS224B

Unit Descriptor

Hand mould products

This competency covers the hand moulding of ceramic, plaster and other materials and the production of special purpose components/products.

In a typical scenario an operator will determine production requirements and quantities from the production schedules and the product requirements from specifications or similar documents.

Typically an operator would:

- select and prepare mould or former
- mould the materials by hand
- finish the component
- store the component correctly
- monitor the procedure and keep records of equipment operations
- identify and rectify faults or equipment failures.

This competency is typically performed by operators working either independently or as part of a team.

Unit Sector

This unit has no prerequisites:

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Assemble and prepare the mould or former. | 1.1 Establish a safe working environment to <u>procedures</u>
1.2 Identify and prepare the appropriate mould or <u>former</u>
1.3 Level and secure the mould or <u>former</u> to <u>procedures</u>
1.4 Check that the base is stabilised and correctly mounted as required to facilitate rolling or turning out
1.5 Position inserts or loose pieces as required
1.6 Apply the correct stripping agent. |
| 2. Mould materials. | 2.1 Prepare the material mix or obtain the material from the batch preparation unit
2.2 Ensure an adequate supply of material is available to meet production requirements
2.3 Introduce material to the work piece cavity and compact to <u>procedures</u>
2.4 Ensure that inserts or loose pieces do not move during moulding
2.5 Employ safe working practices consistent with <u>procedures</u>
2.6 Roll and strip/turn out the component for finishing. |

PMCOPS224B Hand mould products

- 3. Finish the component/product.
 - 3.1 Repair defects occurring during the moulding process
 - 3.2 Remove inserts or loose pieces and replace in mould or former
 - 3.3 Prepare the surface of the component for the application of any surface finishes
 - 3.4 Cure or dry the components to specification
 - 3.5 Return mould and or segments for re-use or storage in accordance with requirements.

- 4. Rectify routine problems.
 - 4.1 Identify the range of faults that can occur during the operation
 - 4.2 Determine and rectify fault causes by procedures
 - 4.3 Identify and rectify equipment failure causes to procedures
 - 4.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures
 - 4.5 Identify non-routine problems and report to designated person.

- 5. Inspect and store components.
 - 5.1 Inspect component for defects
 - 5.2 Store the component to specifications and procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency involves the hand moulding of clay, ceramic, plaster and other products and may also be relevant to craft practitioners producing ceramic work.

This competency unit includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

Typical problems include -

- maintaining correct distribution and compaction of materials
- maintaining sectional profiles in accordance with specifications
- maintaining cleanliness and specification of materials.

All operations are performed to procedures.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, those parts of element 4 referring to dealing with routine problems). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

Competence must be demonstrated in the ability to recognise situations requiring action and then in implementing appropriate corrective action. Consistent performance should be demonstrated. In particular look to see that:

- types of raw materials and finishing materials are able to be identified
- OHS and safe work practices are followed
- component movements are accompanied by appropriate safe working practices
- basic mould or former maintenance and inspection practices are carried out.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Essential knowledge

Knowledge and understanding of the equipment/process sufficient to recognise abnormal operating conditions and alert appropriate individuals.

Knowledge of the enterprise's procedures and relevant regulatory requirements, along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the equipment/process.

Competence includes the ability to describe:

- appropriate safety procedures concerning the handling of moulds and formers
- procedures relating to the reporting of hazardous conditions
- the content of and handling characteristics of the materials being moulded

as is relevant to the practical construction of components.

PMCOPS230B
Unit Descriptor

Operate a firing kiln

In a typical scenario, an operator in a large plant looks after the operation of kilns typically used to fire clay and ceramic products, such as bricks, tiles and pipes, ceramic products, crockery, sanitary ware, insulators or thermal ceramics, including the resolution of routine problems.

This unit does NOT apply to forming, drying prior to firing, finishing or operation of rotary kilns.

Typically an operator would:

- prepare the kiln for firing
- load the product into the kiln
- ensuring appropriate spacing is provided around the product
- monitor the operation of the kiln and keep appropriate records
- identify and rectify operational problems
- facilitate changes to the firing cycle as determined by the firing program

unload the kiln.

This competency is typically performed by operators working either independently or as part of a team. At all times they would be liaising and cooperating with other members of the team.

This unit has no prerequisites.

No sector assigned

Unit Sector

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| <p>1. Prepare the firing equipment.</p> | <p>1.1 Determine the firing requirements from the production program</p> <p>1.2 Identify and set up the kiln cars or furniture</p> <p>1.3 Ensure kiln refractories are within specification, including kiln cars, kiln lining and refractories at burners, as appropriate</p> <p>1.4 Ensure the firing equipment is safe to use</p> <p>1.5 Check for fuel feed obstructions and clear burner pathways.</p> |
| <p>2. Load kiln.</p> | <p>2.1 Ensure products are set or stacked to specification</p> <p>2.2 Ensure correct stacking pattern is used</p> <p>2.3 Ensure adequate space is allowed around each item</p> <p>2.4 Use kiln space effectively.</p> |

- 3. Monitor kiln operation.
 - 3.1 Monitor kiln firing to ensure temperature rise and fall rate is to specification
 - 3.2 Monitor and record kiln car movement, or kiln contents
 - 3.3 Monitor and adjust kiln heating equipment (elements or burners) and record temperature gradient details
 - 3.4 Monitor the kiln atmosphere
 - 3.5 Monitor for correct operation of kiln
 - 3.6 Move kiln car or kiln contents to the appropriate storage area
 - 3.7 Check and record condition of products leaving the kiln.

- 4. Rectify routine problems.
 - 4.1 Identify the range of faults that can occur during the operation
 - 4.2 Determine and rectify fault causes in accordance with procedures/work instructions
 - 4.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
 - 4.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
 - 4.5 Identify non-routine problems and report to designated person.

- 5. Control hazards.
 - 5.1 Identify hazards in kiln work area
 - 5.2 Assess the risks arising from those hazards
 - 5.3 Implement measures to control those risks in line with procedures and duty of care.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	1
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

This unit of competency includes all such items of equipment and unit operations which form part of the kiln system.

- Kilns - batch, tunnel, top-hat, shuttle and roller hearth
- Kilns - oil, gas, electric, coal and wood fired
- optical and thermocouple pyrometers
- kiln cars, racking or other kiln furniture
- PLCs, control panels, control computers.

- ensuring moisture content of product prior to firing is within specification
- furnace temperature profile variations
- distribution of product in kiln or on kiln car
- correct transition through quartz inversion, as appropriate
- distortion of refractories or mechanical failures.

This unit was developed for larger production contexts but it may also be relevant to craft practitioners producing ceramic work.

The identification and control of hazards and the application of OHS are to be in accordance with current, applicable legislation and regulations, and company procedures. All work is carried out at all times in accordance with these requirements.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency (eg, elements 1 to 4). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of 'what if' scenarios both on the plant (during demonstration of normal operations and walk-throughs of abnormal operations) and off the plant.

Critical aspects

It is essential that the equipment be understood and that the importance of critical material properties, settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that -

- kiln or kiln car is loaded to requirements
- kiln firing is to requirements
- temperature rise/fall rates are to specification.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk-through forming part of the response. These assessment activities should include responding to a range of problems

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Essential knowledge

Knowledge and understanding of the firing equipment sufficient to recognise conditions which will lead to out of specification product.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within time constraints and in a manner relevant to the operation of the firing equipment.

Competence includes the ability to :

- apply and/or describe -
 - stages and critical transitions during the firing process
 - kiln temperature profile and deviations allowed
 - importance of stacking pattern
 - consequences of variations in the firing process
- distinguish between causes of faults such as -
 - firing/temperature profile
 - drying
 - materials
 - stacking or distribution of product in kiln

as is relevant to the practical operation of the equipment.

PMCOPS231B

Unit Descriptor

Operate extrusion equipment

In a typical scenario, an operator in a large plant looks after the operation of mechanical forming equipment, including extruders and ancillaries, for clay, ceramic and concrete products, including resolving of routine problems.

This unit does NOT apply to presses or back stamping, slip forming or manual forming.

The plant technician would:

- start up and shut down the equipment
- ensure that vacuum equipment is operating properly
- ensure feed stock is of appropriate type and consistency
- monitor equipment operation
- identify and rectify operational problems
- facilitate output changes.

This competency is typically performed by operators working either independently or as part of a team. At all times they would be liaising and cooperating with other members of the team.

This unit does NOT require the operation of a central control panel.

This unit has no prerequisites.

No sector assigned

Unit Sector

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Prepare the extrusion equipment. | 1.1 Determine the product formation requirements from the production program
1.2 Ensure the required change parts are in place
1.3 Ensure the required raw materials are selected and loaded or connected to the equipment
1.4 Ensure the equipment is safe to use. |
| 2. Operate forming equipment. | 2.1 Ensure correct vacuum is applied to raw material
2.2 Operate equipment to produce product of the required shape, dimensions and consistency
2.3 Monitor equipment conditions and adjust as required
2.4 Monitor and adjust product properties as required
2.5 Record production data as required. |
| 3. Operate surface finishing equipment. | 3.1 Operate surface patterning equipment as required
3.2 Operate frit application and similar equipment as required
3.3 Monitor operations and adjust/refill as required
3.4 Apply glazing material as required. |
| 4. Unload and shut down extrusion equipment. | 4.1 Unload and shut down extrusion equipment at conclusion of the production run to requirements
4.2 Clean up work area and perform housekeeping duties
4.3 Store materials appropriately. |

- 5. Rectify routine problems.
 - 5.1 Identify the range of faults that can occur during the operation
 - 5.2 Determine and rectify fault causes in accordance with procedures/work instructions
 - 5.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
 - 5.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
 - 5.5 Identify non-routine problems and report to designated person.

- 6. Control hazards.
 - 6.1 Identify hazards in extruder work area
 - 6.2 Assess the risks arising from those hazards
 - 6.3 Implement measures to control those risks in line with procedures and duty of care.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	1
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

This unit of competency includes all such items of equipment and unit operations which form part of the extrusion system.

- pug mill
- extruder including dies, wire trims or blades
- surface treatment applications, including frit or glaze
- impression rollers or moulds
- wire cutting machines
- transfer machines.

- moisture content not within specifications
- maladjustment of the cutting wires
- damage to the product.

The identification and control of hazards and the application of OHS is to be in accordance with current, applicable legislation and regulations, and company procedures. All work is carried out at all times in accordance with these requirements.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency (eg, element 5). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of 'what if' scenarios both on the plant (during demonstration of normal operations and walk-throughs of abnormal operations) and off the plant.

Critical aspects

It is essential that the extrusion equipment be understood and that the importance of critical material properties, settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- extruder is working within limits
- product meets size and consistency parameters
- waste is properly handled
- product is formed without surface blemishes or damage
- surface treatments are applied to requirements.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk-through forming part of the response. These assessment activities should include responding to a range of problems.

Resource implications	Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.
Other assessment advice	In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units. Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.
Essential knowledge	<p>Knowledge and understanding of the extrusion equipment sufficient to recognise operating conditions which will lead to out of specification production.</p> <p>Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the extrusion equipment.</p> <p>Competence includes the ability to:</p> <ul style="list-style-type: none">• apply and/or explain:<ul style="list-style-type: none">• composition and nature of the products being manufactured• construction and limitations of the equipment• start up and shut down processes• adjustments required• distinguish between causes of faults such as:<ul style="list-style-type: none">• material/moisture• equipment adjustment/set up• maintenance <p>as is relevant to the practical operation of the extrusion equipment.</p>

PMCOPS232B

Unit Descriptor

Operate pressing equipment

In a typical scenario, an operator in a large plant looks after the operation of mechanical press forming equipment for clay, ceramic and concrete products, including resolving routine problems.

This unit does NOT apply to extruding, slip forming, or manual forming.

Typically the operator would:

- prepare the equipment for operation
- start up and shut down the equipment
- monitor the operation of the equipment
- identify and rectify operational problems
- facilitate output changes.

This competency is typically performed by operators working either independently or as part of a team. At all times they would be liaising and cooperating with other members of the team.

This unit has no prerequisites.

No sector assigned

Unit Sector

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Prepare the pressing equipment. | 1.1 Determine the product formation requirements from the production program
1.2 Ensure the required change parts are in place
1.3 Ensure the required raw materials are selected and loaded or connected to the equipment
1.4 Ensure the equipment is safe to use. |
| 2. Operate pressing equipment. | 2.1 Operate equipment to produce product of the required shape, dimensions and consistency
2.2 Monitor equipment conditions and adjust as required
2.3 Monitor and adjust product properties as required
2.4 Record production data as required. |
| 3. Unload and shut down pressing equipment. | 3.1 Unload and shut down pressing equipment at conclusion of the production run to requirements
3.2 Clean up work area and perform housekeeping
3.3 Store materials appropriately. |
| 4. Rectify routine problems. | 4.1 Identify the range of faults that can occur during the operation
4.2 Determine and rectify fault causes in accordance with procedures/work instructions
4.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
4.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
4.5 Identify non-routine problems and report to designated person. |

- 5. Control hazards.
 - 5.1 Identify hazards in pressing work area
 - 5.2 Assess the risks arising from those hazards
 - 5.3 Implement measures to control those risks in line with procedures and duty of care.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	1
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

This unit of competency includes all such items of equipment and unit operations which form part of the pressing system.

- moulds
- presses
- press dies
- PLCs where fitted.

- moisture content not within specifications
- unsatisfactory alignment
- damage to the product
- uneven distribution of material in mould
- incorrect amount of fill in mould
- incorrect pressure/vibration for product.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency (eg, element 5). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of 'what if' scenarios both on the plant (during demonstration of normal operations and walk-throughs of abnormal operations) and off the plant.

Critical aspects

It is essential that the pressing equipment be understood and that the importance of critical material properties, settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- dies/moulds are in satisfactory condition
- product is to specification (size, shape and consistency)
- press is operating as required.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk-through forming part of the response. These assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units. Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Essential knowledge Knowledge and understanding of the pressing equipment sufficient to recognise operating conditions which will lead to out of specification production. Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the pressing equipment.

Competence includes the ability to:

- apply and/or explain -
 - composition and nature of the products being manufactured
 - construction and limitations of the equipment
 - start up and shut down processes
 - adjustments required
- distinguish between causes of faults such as -
 - material/moisture
 - equipment adjustment/set up
 - maintenance

as is relevant to the practical operation of the pressing equipment.

PMCOPS240B

Unit Descriptor

Operate melting process

In a typical scenario this competency covers the operation of primary melting furnaces used in glass production or the forming of glass products directly from a melting furnace.

This unit does NOT apply to the operation of furnaces used for reheating glass product, which is covered by PMCOPS241B Operate process ovens.

Typically an operator would:

- prepare and operate the glass melting process
- monitor process operations
- make adjustments in accordance with work instructions and defined operational parameters
- undertake routine quality checks including density, batch mixes and atmospheric conditions
- identify and rectify operational problems
- undertake minor maintenance on equipment
- undertake housekeeping
- complete records and logs.

This competency is typically performed by operators working either independently or as part of a work team. At all times they would be liaising with other members of the team.

This unit has no prerequisites.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|------------------------------------|---|
| 1. Prepare the melting equipment. | 1.1 Establish production program and melting guidelines from the job specifications/work instructions
1.2 Conduct furnace pre-start-up procedure according to enterprise procedure checklist
1.3 Ensure furnace start up function complies with standard operating procedures
1.4 Ensure glass melting equipment is operated in accordance with established enterprise procedures. |
| 2. Test furnace back-up equipment. | 2.1 Make sure furnace back-up equipment test schedule is maintained
2.2 Conduct back-up equipment test procedures to meet specific enterprise requirements. |

PMCOPS240B Operate melting process

- 3. Melt raw materials.
 - 3.1 Interpret the molten glass mix and required furnace operation, from job specifications
 - 3.2 Melt glass and monitor furnace and other operating parameters, in accordance with established enterprise procedures/work instructions.

- 4. Monitor and interpret data and adjust operation.
 - 4.1 Monitor instruments and control panels, and interpret test results for fluctuations, variations and trends
 - 4.2 Monitor plant and process and deduce conditions of materials in process and products being made
 - 4.3 Determine appropriate action to improve process operation
 - 4.4 Adjust furnace controls to ensure glass melt parameters are maintained to job specifications
 - 4.5 Check that process operation has improved
 - 4.6 Continue analysing data and making adjustments until desired level of process operation is achieved and product is within specifications in accordance with work instructions.

- 5. Rectify problems.
 - 5.1 Identify the range of faults that can occur during the operation
 - 5.2 Determine and rectify fault causes in accordance with established enterprise procedures
 - 5.3 Identify and rectify equipment failure causes in accordance with established enterprise procedures
 - 5.4 Make sure appropriate records and log books of equipment operations are maintained to meet enterprise requirements
 - 5.5 Identify non-routine problems and report to designated person.

- 6. Control hazards.
 - 6.1 Identify hazards from the job to be done
 - 6.2 Identify other hazards in the work area
 - 6.3 Assess the risks arising from those hazards
 - 6.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	2

RANGE STATEMENT

- flat glass
 - insulation, glass wool insulation, laminated blankets, roll and boards
 - fibreglass, glass filaments
 - packaging, bottles and jars.
-
- furnaces and associated equipment
 - gas stations
 - computers
 - measuring and recording equipment
 - communication equipment
 - hand tools
 - safety clothing and equipment.

The process includes melting, refining and conditioning of raw material, including frit and other recycled glass materials, to produce glass for forming processes.

- scientific glass
 - secondary processes
 - the softening of already made glass.
-
- test results
 - instrument/control panel information
 - data from physical senses (sight, sound, hearing, etc)
 - temperatures, pressures, material flow and discharge rates and effects
 - variations to chemical reactions/material modifications.
-
- raw materials feed
 - alternative fuel sources
 - analysis of all plant data including test results, control instrument data and other observations
 - control of furnace temperature within specifications
 - surveillance of melt quality
 - taking corrective action.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, element 5 referring to the identification of a range of faults occurring during operation). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

It is essential that the melting equipment be understood and that the importance of critical material properties, settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- importance of critical material properties, settings and readings is identified
- process and equipment are operated in accordance with work instructions and process parameters
- temperatures are maintained within limits
- melt quality is monitored to minimise wastage
- start up and shut down occur first time
- change in utilities (gas/power/diesel) is responded to immediately
- signals and alarms are responded to immediately
- process measurements and tests are continually made, observed and interpreted
- melt quality is maintained to customer specifications.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

It may be appropriate to assess this unit concurrently with:

- PMCSUP292A Sample and test materials and product.

Essential knowledge

Knowledge and understanding of the melting process sufficient to recognise process conditions which will lead to out of specification production and to take appropriate action.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the melting equipment.

Competence includes the ability to:

- apply and/or explain:
 - composition and nature of the glass
 - start up and shut down processes
 - construction and limitations of the melting equipment and conditions
 - combustion fundamentals
 - out of specification situations
 - physics and chemistry (where appropriate) of process
 - principles of operation of process
 - control philosophy of process
- distinguish between causes of faults such as:
 - raw material
 - mechanical
 - electrical/instrument

as is relevant to the practical operation of the melting process.

PMCOPS241B

Unit Descriptor

Operate process ovens

In a typical scenario this competency covers the operation of melting furnaces used in annealing, conditioning, laminating, mirroring, toughening and glass reheating, including the rectification of routine problems.

This unit does NOT apply to the operation of furnaces used for primary glass production and forming of glass products directly from the melting furnace which is covered by PMCOPS240B Operate melting process.

Typically an operator would:

- prepare equipment for production
- complete changeovers
- operate and monitor equipment operation
- make adjustments to cycle times
- undertake routine checks
- identify and rectify operational problems
- undertake minor maintenance on equipment
- undertake housekeeping
- complete records and logs.

This competency is typically performed by operators working either independently or as part of a work team. At all times they would be liaising with other members of the team.

This unit has no prerequisites.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| <p>1. Prepare the annealing/toughening/reheating/laminating equipment.</p> | <p>1.1 Interpret job specifications</p> <p>1.2 Isolate appropriate line/equipment including robots, load stations, <u>lehr furnace</u> and unloading of station conveyors if required</p> <p>1.3 Undertake basic set up and removal of current moulds in accordance with manufacturer's and work instructions if required</p> <p>1.4 Check that the quality and quantity of input glass is suitable for production run as per company requirements</p> <p>1.5 Undertake equipment preparation and checks according to established procedures/work instructions</p> <p>1.6 Make machinery/equipment adjustments and final preparations to ensure that work instructions are met</p> <p>1.7 Conduct product run/procedure to produce samples to confirm that quality meets specifications, if required.</p> |
|--|---|

PMCOPS241B Operate process ovens

- 2. Anneal/toughen/reheat/laminate the products.
 - 2.1 Monitor equipment to ensure quality specifications are met
 - 2.2 Identify routine variations to annealing/reheating process
 - 2.3 Make routine operation adjustments according to established procedures/work instructions to maintain product quality
 - 2.4 Conduct product sampling and quality control checks according to standard procedures/work instructions to ensure and maintain specifications
 - 2.5 Use ancillary equipment and observe safety procedures in accordance with enterprise requirements
 - 2.6 Document and maintain records and production results according to enterprise requirements.

- 3. Monitor and record reheating operation.
 - 3.1 Measure and record operating parameters, according to enterprise requirements
 - 3.2 Adjust reheating equipment controls to ensure glass parameters are maintained to job specifications
 - 3.3 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions.

- 4. Rectify routine problems.
 - 4.1 Identify the range of faults that can occur during the operation
 - 4.2 Determine and rectify fault causes in accordance with procedures/work instructions
 - 4.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
 - 4.4 Identify non-routine problems and report to designated person.

- 5. Control hazards.
 - 5.1 Identify hazards from the job to be done
 - 5.2 Identify other hazards in the work area
 - 5.3 Assess the risks arising from those hazards
 - 5.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	2

RANGE STATEMENT

- packaging, bottles and jars
 - automotive glass
 - flat glass.
-
- reheating equipment and associated equipment
 - toughening equipment
 - mirror and laminating equipment
 - annealing and associated equipment
 - gas stations
 - computers
 - measuring and recording equipment
 - communication equipment
 - hand tools
 - safety clothing and equipment.

This competency includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

- melting furnaces used in glass production
 - forming of glass products directly from a melting furnace.
-
- temperature and pressure problems
 - equipment problems
 - quality problems.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, element 4 referring to the identification of a range of faults occurring during operation). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

It is essential that the reheating equipment be understood and that the importance of critical material properties, settings, parameters and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- temperatures and stress parameters are maintained within limits
- equipment set up is completed in accordance with work instructions including identification of isolation points, correct isolation of equipment and correct entering of new parameters
- start up and shut down occurs first time
- signals and alarms are responded to immediately
- process measurements are continually made, observed and interpreted
- quality is maintained to customer specifications.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

It may be appropriate to assess this unit concurrently with:

- PMCSUP292A Sample and test materials and product.

Essential knowledge

Knowledge and understanding of the reheating process sufficient to recognise process conditions which will lead to out of specification production and to take appropriate action.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the reheating equipment.

Competence includes the ability to:

- apply and/or explain:
 - composition and nature of the glass
 - start up and shut down processes
 - construction and limitations of reheating equipment and conditions
 - out of specification situations
 - annealing/toughening/conditioning/mirror/laminating/reheating process set up, including identification of isolation points and entering new parameters into PLC
 - temperature and temporary and permanent stress
 - annealing and post-annealing processes
 - toughening and post-toughening processes
 - quality problems such as poor optics, excessive breakage, non-uniform break pattern, incorrect cross bend, excessive bow, scratches and poor glass shape
- distinguish between causes of faults such as -
 - raw material
 - mechanical
 - electrical/instrument

as is relevant to the practical operation of the melting process.

PMCOPS242B

Unit Descriptor

Operate blown insulation equipment

In a typical scenario this competency covers the operation of blowing equipment used for manufacture of glass and insulation, and includes the rectification of routine problems.

Typically an operator would:

- prepare formation equipment for production
- check supply and quality of material stocks
- start up, operate and monitor equipment operation
- undertake sampling and quality checks
- identify and rectify operational problems
- undertake minor maintenance on equipment
- undertake housekeeping
- complete records and logs.

This competency is typically performed by operators working either independently or as part of a work team. At all times they would be liaising with other members of the team.

This unit has no prerequisites.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---------------------------------|--|
| 1. Prepare formation equipment. | 1.1 Interpret job specifications and set up the appropriate line/equipment
1.2 Check materials stocks for quality and quantity suitable for production run
1.3 Undertake equipment preparation and checks according to established procedures
1.4 Conduct initial product run/procedure to produce samples to confirm that quality meets specifications
1.5 Make machinery/equipment adjustments and final preparations to ensure that job specifications are met. |
|---------------------------------|--|

- 2. Form the products.
 - 2.1 Start forming process line and monitor equipment to ensure that quality specifications are met
 - 2.2 Monitor operating parameters according to procedures
 - 2.3 Make operation adjustments according to established procedures to maintain product quality
 - 2.4 Conduct product sampling and quality control checks according to standard procedures to ensure and maintain the forming specifications
 - 2.5 Use and observe ancillary equipment and safety procedures in accordance with enterprise requirements
 - 2.6 Document and maintain records and production results according to enterprise requirements
 - 2.7 Identify processing problems and report to a designated person for rectification.

- 3. Rectify routine problems.
 - 3.1 Identify the range of faults that can occur during the operation
 - 3.2 Determine and rectify fault causes by procedures/work instructions
 - 3.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
 - 3.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
 - 3.5 Identify non-routine problems and report to designated person.

- 4. Control hazards.
 - 4.1 Identify hazards from the job to be done
 - 4.2 Identify other hazards in the work area
 - 4.3 Assess the risks arising from those hazards
 - 4.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	2

RANGE STATEMENT

This competency unit includes the operation of insulation forming equipment, such as -

- • spinners
 - fiberisers
 - bushings
 - lapping equipment
 - communication equipment
 - measuring equipment
 - hand tools
 - safety clothing and equipment.
-
- temperature and pressure problems
 - equipment problems
 - quality problems.

This competency includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, element 3 referring to the identification of a range of faults occurring during operation). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

It is essential that the reheating equipment be understood and that the importance of critical material properties, settings, parameters and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- equipment set up is completed in accordance with work instructions and manufacturer's specifications
- start up and shut down occur first time
- signals and alarms are responded to immediately
- process measurements are continually made, observed and interpreted
- operating supply levels are maintained
- equipment problems are identified and responded to immediately
- quality is maintained to customer specifications.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of the forming equipment and glass quality to customer specifications sufficient to recognise process conditions which will lead to out of specification production.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the process and equipment.

Competence includes the ability to:

- apply and/or explain:
 - composition and nature of the glass
 - start up and shut down processes
 - construction and limitations of the equipment
 - out of specification situations
 - importance of safety procedures and PPE
 - quality problems which may include broken packs, mixed and damaged material, binder delivery, blocked spinners/spray rings, poor glass quality
- distinguish between causes of faults such as:
 - raw materials
 - equipment
 - types of defects/faults
 - electrical/instrumental/mechanical

as is relevant to the practical operation of the plant.

PMCOPS243B

Unit Descriptor

Operate float forming equipment

In a typical scenario this competency covers the operation of float forming equipment used for the manufacture of sheet glass, including the rectification of routine problems.

Typically an operator would :

- set up and tune the process
- operate and monitor equipment operation such as monitoring of ribbon, temperature, position of rolls and quality
- undertake routine checks
- identify and rectify operational problems
- undertake housekeeping
- complete records and logs.

This competency is typically performed by operators working either independently or as part of a work team. At all times they would be liaising with other members of the team.

This unit has no prerequisites.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---------------------------------|---|
| 1. Prepare formation equipment. | 1.1 Interpret job specifications and set up the appropriate line/equipment
1.2 Set quality and quantity of molten glass conditions to be consistent with production program requirements
1.3 Undertake equipment preparation and checks according to established procedures/work instructions. |
| 2. Fine tune forming processes. | 2.1 Conduct pre-run checks according to equipment procedures
2.2 Make machinery/equipment adjustments and final preparations to ensure that work instructions are met
2.3 Confirm that quality meets specifications. |
| 3. Form the products. | 3.1 Monitor equipment to ensure that quality specifications are met
3.2 Make operation adjustments according to established procedures to maintain product quality
3.3 Conduct product sampling and quality control checks according to standard procedures
3.4 Use and monitor ancillary equipment and safety procedures in accordance with enterprise requirements
3.5 Maintain records according to enterprise requirements. |

- 4. Rectify routine problems.
 - 4.1 Identify the range of faults that can occur during the operation
 - 4.2 Determine and rectify fault causes in accordance with procedures/work instructions
 - 4.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
 - 4.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
 - 4.5 Identify non-routine problems and report to designated person.

- 5. Control hazards.
 - 5.1 Identify hazards from the job to be done
 - 5.2 Identify other hazards in the work area
 - 5.3 Assess the risks arising from those hazards
 - 5.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	2

RANGE STATEMENT

This competency unit includes the operation of float forming equipment, such as -

- bath
- ancillary equipment
- computers
- measuring recording equipment
- communication equipment
- hand tools
- safety clothing and equipment.

Typical problems include -

- temperature and pressure problems
- equipment problems
- quality problems
- loss of ribbon.

This competency includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, element 4 referring to the identification of a range of faults occurring during operation). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

It is essential that the reheating equipment be understood and that the importance of critical material properties, settings, parameters and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that -

- temperatures are maintained within limits
- start up and shut down occur first time
- signals and alarms are responded to immediately
- process measurements are continually made, observed and interpreted
- quality is maintained to customer specifications.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of the float forming process and equipment sufficient to recognise process conditions which will lead to out of specification production and to take appropriate action.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the forming equipment.

Competence includes the ability to:

- apply and/or explain:
 - composition and nature of the glass
 - set up/changeover of equipment
 - start up and shut down processes
 - construction and limitations of the equipment
 - out of specification situations
 - quality problems including poor optics, excessive breakage, non-uniform break pattern, excessive bow, scratches, poor glass shape
- distinguish between causes of faults such as:
 - raw materials
 - equipment
 - types of defects/faults
 - electrical/instrumental

as is relevant to the practical operation of the plant.

PMCOPS244B

Unit Descriptor

Operate fibre forming equipment

In a typical scenario this competency covers the operation of fibre forming/ extrusion equipment used for the manufacture of glass fibres, including the rectification of routine problems.

Typically an operator would:

- prepare formation equipment for production
- check supply and quality of material stocks
- start up, operate and monitor equipment
- make operational adjustments
- undertake sampling and quality checks
- identify and rectify operational problems
- undertake minor maintenance on equipment
- undertake housekeeping
- complete records and logs.

This competency is typically performed by operators working either independently or as part of a work team. At all times they would be liaising with other members of the team.

This unit has no prerequisites.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|-------------------------------|--|
| 1. Prepare forming equipment. | 1.1 Interpret job specifications and set up the appropriate equipment in accordance with work instructions
1.2 Check materials stocks for quality and quantity suitable for production
1.3 Prepare all consumables for production
1.4 Undertake equipment preparation and checks according to established procedures. |
| 2. Operate forming equipment. | 2.1 Start up equipment in accordance with work instructions
2.2 Form glass by directing product flow in accordance with work instructions and safety requirements
2.3 Ensure forming processing equipment is operated in accordance with established enterprise procedures. |

- 3. Monitor and record forming equipment operation.
 - 3.1 Monitor equipment to ensure that quality specifications are met
 - 3.2 Make operation adjustments according to established procedures to maintain product quality
 - 3.3 Conduct product sampling and quality control checks according to enterprise procedures/work instructions to maintain forming specifications
 - 3.4 Monitor application of size over glass fibres to ensure quality specifications are met
 - 3.5 Use and observe ancillary equipment and safety procedures in accordance with enterprise requirements
 - 3.6 Document and maintain records and production results according to enterprise requirements
 - 3.7 Identify and report processing problems to a designated person for rectification.

- 4. Rectify routine problems.
 - 4.1 Identify the range of faults that can occur during the operation
 - 4.2 Determine and rectify fault causes in accordance with procedures/work instructions
 - 4.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
 - 4.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
 - 4.5 Identify non-routine problems and report to designated person.

- 5. Control hazards.
 - 5.1 Identify hazards from the job to be done
 - 5.2 Identify other hazards in the work area
 - 5.3 Assess the risks arising from those hazards
 - 5.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	2

RANGE STATEMENT

This competency unit includes the operation of fibre extrusion equipment, such as -

- forming equipment
- size application equipment
- communication equipment
- hand tools
- safety clothing and equipment.

Typical problems include -

- winding and sliver problems
- equipment problems including condition and cleaning of equipment
- quality problems.

This competency includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, element 4 referring to the identification of a range of faults occurring during operation). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

It is essential that the equipment and operating parameters be understood and that the importance of critical material properties is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- equipment set up is completed in accordance with work instructions
- signals and alarms are responded to immediately
- process measurements are continually made, observed and interpreted
- operating supply levels are maintained
- equipment problems are identified and responded to immediately
- quality is maintained to customer specifications.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of the forming equipment and glass quality to customer specifications sufficient to recognise process conditions which will lead to out of specification production.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the process and equipment.

Competence includes the ability to:

- apply and/or explain:
 - composition and nature of the glass
 - start up and shut down processes
 - construction and limitations of the equipment
 - out of specification situations
 - importance of safety procedures and PPE
 - quality problems which may include broken packs, mixed and damaged material, double winding, forming positions break and stoppages, and poor glass quality
- distinguish between causes of faults such as:
 - raw materials
 - equipment
 - types of defects/faults
 - electrical/instrumental

as is relevant to the practical operation of the plant.

PMCOPS245B

Unit Descriptor

Operate container forming equipment

In a typical scenario this competency covers the operation of forming equipment used for the manufacture of glass containers (eg, bottles, jars), including the rectification of routine problems.

This unit does NOT apply to the operation of furnaces used for primary glass production or the forming of glass products directly from the melting furnace, which is covered by PMCOPS240B Operate melting process.

Typically an operator would:

- check line set-up
- check quality and supply of raw materials
- fine tune the process
- monitor process and make operational adjustments
- conduct routine sampling
- undertake routine checks
- identify and rectify operational problems
- undertake housekeeping
- complete records and logs.

This competency is typically performed by operators working either independently or as part of a work team. At all times they would be liaising with other members of the team.

This unit has no prerequisites.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---------------------------------|---|
| 1. Prepare formation equipment. | 1.1 Interpret job specifications and check the appropriate line/equipment is set up correctly
1.2 Ensure glass feed is at the correct temperature
1.3 Check that production aids and materials are suitable and available for production run
1.4 Undertake equipment preparation and checks according to procedures/work instructions. |
| 2. Fine tune forming processes. | 2.1 Conduct checks according to equipment procedures
2.2 Make machinery and equipment adjustments to ensure that job specifications are met. |

- 3. Form the products.
 - 3.1 Monitor equipment to ensure that quality specifications are met
 - 3.2 Make operation adjustments according to procedures/work instructions to maintain product quality
 - 3.3 Conduct product sampling and quality control checks according to procedures/work instructions to ensure and maintain the forming specifications
 - 3.4 Use and observe ancillary equipment and safety procedures in accordance with enterprise requirements
 - 3.5 Document and maintain records and production results according to procedures/work instructions
 - 3.6 Identify processing problems and report to a designated person for rectification.

- 4. Rectify routine problems.
 - 4.1 Identify the range of faults that can occur during the operation
 - 4.2 Determine and rectify fault causes in accordance with procedures/work instructions
 - 4.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
 - 4.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
 - 4.5 Identify non-routine problems and report to designated person.

- 5. Control hazards.
 - 5.1 Identify hazards from the job to be done
 - 5.2 Identify other hazards in the work area
 - 5.3 Assess the risks arising from those hazards
 - 5.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency unit includes the operation of glass container forming equipment, such as -

- fore hearth
- feeders and delivery
- independent section (IS) forming machines
- ware handling equipment (conveyors, etc)
- hot end inspection equipment.

This competency includes the operation of all ancillary equipment and the operation of plant using PLCs as appropriate.

It does NOT include -

- melting, furnace or raw materials
- annealinglehr
- packing and handling.

Typical problems include -

- container weight off specification
- container sizes not meeting specification
- equipment breakdown.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, element 4 referring to the identification of a range of faults occurring during operation). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

It is essential that the equipment be understood and that the importance of critical material properties and settings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- production rates are acceptable
- product meets specification
- procedures are carried out to requirements and timing (eg, swabbing)
- work area meets occupational cleanliness and hygiene standards.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

This unit may be assessed in conjunction with:

- PMCSUP282A Use computers and related programs in the workplace.

Individual enterprises may choose to add prerequisites relevant to their processes.

Essential knowledge

Knowledge and understanding of the equipment sufficient to recognise conditions which will lead to out of specification product.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the equipment.

Competence includes the ability to:

- apply and/or describe:
 - basics of glass
 - IS machine and mould operation
 - forming processes (blow and blow, press and blow, narrow neck press and blow)
 - swabbing
 - inspection, quality procedures and records
- distinguish between causes of faults such as:
 - heat and temperature
 - dies and forming
 - other equipment faults

as is relevant to the practical operation of the equipment.

PMCOPS246B

Unit Descriptor

Operate glass printing equipment

In a typical scenario this competency covers the preparation and operation of glass printing equipment, including the rectification of routine problems.

Typically an operator would:

- set up printing process
- complete changeovers
- clean and maintain print screens
- monitor glass throughput and quality
- undertake routine checks
- identify and rectify operational problems
- undertake housekeeping
- complete records and logs.

This competency is typically performed by operators working either independently or as part of a work team. At all times they would be liaising with other members of the team.

This unit has no prerequisites.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Prepare the printing equipment for production. | 1.1 Set up line in accordance with job specifications
1.2 Transfer glass to conveyor
1.3 Conduct pre-start up procedure and visual checks according to enterprise procedure checklist
1.4 Set up and configure printing equipment to ensure start up function complies with standard operating procedures
1.5 Load and separate glass in accordance with work instructions. |
| 2. Operate printing equipment. | 2.1 Identify customer requirements and set minimum parameters in accordance with batch sheets
2.2 Start up equipment in accordance with work instructions
2.3 Ensure glass printing equipment is operated in accordance with established enterprise procedures. |
| 3. Monitor and record printing equipment operation. | 3.1 Monitor equipment performance in accordance with work instructions and manufacturer's specifications
3.2 Monitor non-conforming product against customer specifications
3.3 Adjust and control equipment to ensure correct product quality in accordance with company requirements
3.4 Complete final inspection checks
3.5 Complete appropriate records and logs. |

- 4. Rectify routine problems.
 - 4.1 Identify the range of faults that can occur during the operation
 - 4.2 Determine and rectify fault causes in accordance with procedures/work instructions
 - 4.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
 - 4.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
 - 4.5 Identify non-routine problems and report to designated person.

- 5. Shut down equipment.
 - 5.1 Ensure line is clear of all product and left in a safe manner for start up
 - 5.2 Shut down equipment in accordance with work instructions
 - 5.3 Complete appropriate records and logs
 - 5.4 Shut down equipment in an emergency situation.

- 6. Prepare equipment for maintenance.
 - 6.1 Isolate equipment in accordance with work instructions
 - 6.2 Remove any broken glass safely
 - 6.3 Make sure area is clear and safe for maintenance.

- 7. Control hazards.
 - 7.1 Identify hazards from the job to be done
 - 7.2 Identify other hazards in the work area
 - 7.3 Assess the risks arising from those hazards
 - 7.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency unit includes finishing equipment applicable to each of the specific areas of glass products manufacture -

- flat glass
- automotive glass.

This competency includes equipment such as -

- printing and edgework equipment
- computers
- measuring and recording equipment
- communication equipment
- hand tools
- safety clothing and equipment.

Typical problems include -

- process problems
- equipment problems
- quality problems.

This competency includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, element 4 referring to the identification of a range of faults occurring during operation and element 6, equipment isolation). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

It is essential that the printing equipment be understood and that the importance of critical material properties, settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- quality is monitored to minimise wastage
- products are produced within specifications and customer requirements
- start up and shut down occur first time
- signals and alarms are responded to immediately
- process measurements are continually made or observed
- all OHS requirements are followed.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Individual enterprises may choose to add prerequisites relevant to their processes.

Essential knowledge

Knowledge and understanding of the printing equipment and glass quality to customer specifications sufficient to recognise process conditions which will lead to out of specification production.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the finishing equipment.

Competence includes the ability to:

- apply and/or explain:
 - composition and nature of the glass
 - start up and shut down processes
 - importance of OHS procedures in handling glass
 - construction and limitations of the glass printing and edgework processing equipment
 - out of specification situations
- distinguish between causes of faults such as:
 - raw materials
 - equipment
 - types of defects/faults
 - electrical/instrumental

as is relevant to the practical operation of the plant.

PMCOPS247B
Unit Descriptor

Operate primary annealing equipment

In a typical scenario this competency covers the preparation and operation of annealing equipment in the forming of glass products from a melting furnace including the rectification of routine problems. This unit does NOT include secondary processes involved in reheating of glass for laminating or toughening processes, which would be covered by PMCOPS241B Operate process ovens.

Typically an operator would:

- set up and tune the process
- start up and shut down equipment
- monitor ribbon quality, dimensions and temperature
- undertake routine checks
- identify and rectify operational problems
- undertake housekeeping
- complete records and logs.

This competency is typically performed by operators working either independently or as part of a work team. At all times they would be liaising with other members of the team.

This unit has no prerequisites.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Prepare the annealing equipment. | 1.1 Identify the location and function of annealing equipment
1.2 Interpret job specifications and set up the appropriate line/equipment
1.3 Check that the quality and quantity of input glass is suitable for production run as per company requirements
1.4 Undertake equipment preparation and checks according to established procedures/work instructions. |
| 2. Start up and shut down annealing equipment. | 2.1 Outline the steps for setting up and starting annealing equipment in normal and abnormal situations
2.2 Outline the steps for shutting down annealing equipment in normal and abnormal situations
2.3 List items to be checked prior to start up and shutting down of annealing equipment
2.4 Start up the annealing equipment as required
2.5 Shut down the annealing equipment as required. |

PMCOPS247B Operate primary annealing equipment

- 3. Operate annealing equipment.
 - 3.1 Operate annealing equipment to ensure quality specifications are met
 - 3.2 Make operation adjustments according to established procedures/work instructions and ensure product quality and specifications are maintained
 - 3.3 Use and observe ancillary equipment and safety procedures in accordance with enterprise requirements
 - 3.4 Document and maintain records and production results according to enterprise requirements.

- 4. Monitor, adjust and record annealing operation.
 - 4.1 Monitor equipment operation to maintain product quality and specifications
 - 4.2 Measure and record operating parameters according to enterprise requirements
 - 4.3 Conduct product sampling and quality control checks according to standard procedures/work instructions to ensure and maintain annealing specifications
 - 4.4 Adjust annealing equipment controls to ensure glass parameters are maintained to job specifications
 - 4.5 Record results in accordance with work instructions.

- 5. Rectify routine problems.
 - 5.1 Identify the range of faults that can occur during the operation
 - 5.2 Determine and rectify fault causes in accordance with procedures/work instructions
 - 5.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
 - 5.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
 - 5.5 Identify non-routine problems and report to designated person.

- 6. Control hazards.
 - 6.1 Identify hazards from the job to be done
 - 6.2 Identify other hazards in the work area
 - 6.3 Assess the risks arising from those hazards
 - 6.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	2

RANGE STATEMENT

This competency unit includes finishing equipment applicable to each of the specific areas of glass products manufacture -

- flat glass
- packaging, bottles and jars.

This competency includes equipment such as -

- lehr and associated equipment
- gas burners
- instrumentation
- computers
- measuring and recording equipment
- communication equipment
- hand tools
- safety clothing and equipment.

Typical problems include -

- process problems
- equipment problems
- quality problems.

This competency includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

It does NOT include secondary processes involved with -

- reheating glass for laminating or toughening processes.

Typical problems include -

- temperature and strain problems
- equipment problems
- quality problems
- loss of utilities.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, element 5 referring to the identification of a range of faults occurring during operation). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

It is essential that the reheating equipment be understood and that the importance of critical material properties, settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- temperatures and stress parameters are maintained within limits
- equipment set up is completed in accordance with work instructions
- start up and shut down occur first time
- signals and alarms are responded to immediately
- process measurements are continually made, observed and interpreted
- quality is maintained to customer specifications.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Individual enterprises may choose to add prerequisites relevant to their processes.

Essential knowledge

Knowledge and understanding of the annealing/conditioning equipment and glass quality sufficient to recognise process conditions which will lead to out of specification production.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the process and equipment.

Competence includes the ability to:

- apply and/or explain:
 - composition and nature of the glass
 - start up and shut down processes
 - set up and annealing/conditioning process
 - temperature and temporary and permanent stress
 - pre-annealing, annealing and post-annealing processes
 - construction and limitations of the reheating equipment
 - out of specification situations
 - quality problems such as poor optics, distortion, excessive breakage, non-uniform break pattern, incorrect cross bend, excessive bow, scratches and poor glass shape
- distinguish between causes of faults such as:
 - raw materials/ribbon faults
 - equipment
 - types of defects/faults
 - electrical/instrumental

as is relevant to the practical operation of the plant.

PMCOPS248B

Unit Descriptor

Operate glass finishing equipment

In a typical scenario this competency covers the preparation and operation of glass finishing equipment, including the rectification of routine problems.

Typically an operator would:

- set up equipment according to work plans
- monitor process operation, waste and quality
- undertake changeovers
- make adjustments to ensure product quality is within specifications
- conduct routine checks
- identify and rectify operational problems
- undertake housekeeping
- complete records and logs.

This competency is typically performed by operators working either independently or as part of a work team. At all times they would be liaising with other members of the team.

This unit has no prerequisites.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Prepare the glass finishing equipment for production. | 1.1 Set up line/equipment in accordance with job specifications
1.2 Transfer glass to conveyor
1.3 Conduct pre-start up procedure and visual checks according to enterprise procedure checklist
1.4 Set up and configure finishing equipment/materials to ensure start up function complies with standard operating procedures
1.5 Load and separate glass in accordance with work instructions. |
| 2. Operate glass finishing equipment. | 2.1 Identify customer requirements and set minimum parameters in accordance with enterprise standards
2.2 Start up equipment in accordance with work instructions
2.3 Ensure glass finishing equipment is operated in accordance with established enterprise procedures/work instructions. |

PMCOPS248B Operate glass finishing equipment

- 3. Monitor and record glass finishing equipment operation.
 - 3.1 Monitor equipment performance in accordance with work instructions and manufacturer's specifications
 - 3.2 Monitor non-conforming product against customer specifications
 - 3.3 Adjust and control equipment/material to ensure correct product quality in accordance with company requirements
 - 3.4 Complete final inspection checks according to enterprise standards
 - 3.5 Complete appropriate records and logs according to enterprise standards.

- 4. Rectify routine problems.
 - 4.1 Identify the range of faults that can occur during the operation
 - 4.2 Determine and rectify fault causes in accordance with procedures/work instructions
 - 4.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
 - 4.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
 - 4.5 Identify non-routine problems and report to designated person.

- 5. Shut down equipment.
 - 5.1 Ensure line/equipment is clear of all product and left in a safe manner for start up
 - 5.2 Shut down equipment in accordance with work instructions
 - 5.3 Complete appropriate records and logs
 - 5.4 Shut down equipment in an emergency situation.

- 6. Control hazards.
 - 6.1 Identify hazards from the job to be done
 - 6.2 Identify other hazards in the work area
 - 6.3 Assess the risks arising from those hazards
 - 6.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	2

RANGE STATEMENT

This competency unit includes finishing equipment applicable to each of the specific areas of glass products manufacture -

- flat glass
- insulation, glass wool insulation, laminated blankets, roll and boards
- fibreglass, glass filaments
- packaging, bottles and jars
- laminated/toughened glass
- automotive glass.

This competency may include equipment such as -

- cutting/breakout and drilling
- trimming and packing
- lathes
- etching/surface coating/ treatment equipment
- wide line equipment
- laminating line equipment
- rigid pipeline
- measuring recording equipment
- choppers
- winding machines
- ovens
- edgeworking machinery
- creel
- on-line cutting
- communication equipment
- computers.

Typical problems include -

- process problems
- equipment problems
- quality problems.

This competency includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

This unit was developed for larger production contexts but it may also be relevant to craft practitioners producing glass products.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, element 4 referring to the identification of a range of faults occurring during operation, or performance criteria 5.4 shut down in an emergency situation). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

It is essential that the glass finishing equipment be understood and that the importance of critical material properties, settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- quality is monitored to minimise wastage
- products are produced within specifications and customer requirements
- start up and shut down are correctly implemented
- signals and alarms are responded to immediately
- process measurements are continually made or observed
- all OHS requirements are followed.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Individual enterprises may choose to add prerequisites relevant to their processes.

Essential knowledge

Knowledge and understanding of the glass finishing equipment and glass quality to customer specifications sufficient to recognise process conditions which will lead to out of specification production.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the finishing equipment.

Competence includes the ability to:

- apply and/or explain:
 - composition and nature of the glass
 - start up and shut down processes
 - importance of OHS procedures in handling glass
 - construction and limitations of the glass finishing processing equipment
 - out of specification situations
- distinguish between causes of faults such as:
 - raw material
 - mechanical
 - electrical/instrument

as is relevant to the practical operation of the finishing equipment.

PMCOPS249B

Operate on-line stacking and assembly equipment

Unit Descriptor

In a typical scenario this competency covers the preparation and operation of glass finishing equipment for on-line stacking and assembly including the rectification of routine problems. It does NOT include processes involved with melting furnaces used in glass production (primary or secondary sources), which are covered by PMCOPS240B Operate melting process or PMCOPS241B Operate process ovens.

Typically an operator would :

- set up equipment for production process
- monitor glass quality
- assemble glass
- conduct routine checks
- identify and rectify operational problems
- undertake housekeeping
- complete records and logs.

This competency is typically performed by operators working either independently or as part of a work team. At all times they would be liaising with other members of the team.

This unit has no prerequisites.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Prepare the flat glass processing equipment for production. | 1.1 Set up line in accordance with job specifications
1.2 Transfer glass to conveyor
1.3 Conduct flat glass processing equipment pre-start up procedure and visual checks according to enterprise procedure checklist
1.4 Set up and configure flat glass processing equipment to ensure start up function complies with standard operating procedures
1.5 Load and separate glass in accordance with work instructions. |
| 2. Operate flat glass processing equipment. | 2.1 Identify customer requirements and set minimum parameters in accordance with batch sheets
2.2 Start up equipment in accordance with work instructions
2.3 Ensure flat glass processing equipment is operated in accordance with established enterprise procedures/work instructions. |

- 3. Monitor, adjust and record flat glass processing equipment operation.
 - 3.1 Monitor equipment performance in accordance with work instructions and manufacturer's specifications
 - 3.2 Monitor non-conforming product against customer specifications
 - 3.3 Adjust and control equipment to ensure correct product quality
 - 3.4 Complete final inspection checks
 - 3.5 Complete appropriate records and logs.

- 4. Rectify routine problems.
 - 4.1 Identify the range of faults that can occur during the operation
 - 4.2 Determine and rectify fault causes in accordance with procedures/work instructions
 - 4.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
 - 4.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
 - 4.5 Identify non-routine problems and report to designated person.

- 5. Shut down equipment.
 - 5.1 Ensure line is clear of all product and left in a safe manner for start up
 - 5.2 Shut down equipment in accordance with work instructions
 - 5.3 Complete appropriate records and logs
 - 5.4 Shut down equipment in an emergency situation.

- 6. Prepare equipment for maintenance.
 - 6.1 Isolate equipment in accordance with work instructions
 - 6.2 Remove any broken glass safely
 - 6.3 Make sure area is clear and safe for maintenance.

- 7. Control hazards.
 - 7.1 Identify hazards from the job to be done
 - 7.2 Identify other hazards in the work area
 - 7.3 Assess the risks arising from those hazards
 - 7.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	2

RANGE STATEMENT

This competency unit includes glass processing equipment applicable to on-line cutting, laminating, toughening or mirror formed glass for each specific area of glass products manufacture -

- flat glass
- laminated glass assembly equipment
- automotive glass.

This competency includes tools and equipment such as -

- flat glass processing equipment and associated equipment
- glass assembly equipment
- on-line stacking equipment
- computers
- measuring and recording equipment
- communication equipment
- hand tools
- safety clothing and equipment.

It does NOT include processes involved with -

- melting furnaces used in glass production (primary source)
- melting furnaces used in reheating (secondary source)
- scientific glass equipment making.

Typical problems include -

- glass jamming or kicking sideways
- temperature problems
- quality problems including scars, moisture content, shelling, venting, curing and thickness in accordance with customer specifications.

This competency includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, element 5 referring to the identification of a range of faults occurring during operation). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

It is essential that the flat glass processing equipment be understood and that the importance of critical material properties, settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- temperatures are maintained within limits
- quality is monitored to minimise wastage
- products are produced within specifications and customer requirements
- start up and shut down occur first time
- signals and alarms are responded to immediately
- process measurements are continually made or observed
- all OHS requirements are followed.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Individual enterprises may choose to add prerequisites relevant to their processes.

Essential knowledge

Knowledge and understanding of the flat glass processing equipment and glass quality to customer specifications sufficient to recognise process conditions which will lead to out of specification production.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the flat glass processing equipment.

Competence includes the ability to:

- apply and/or explain:
 - composition and nature of the glass
 - start up and shut down processes
 - construction and limitations of the flat glass processing equipment
 - out of specification situations
- distinguish between causes of faults such as:
 - raw material
 - mechanical
 - electrical/instrument

as is relevant to the practical operation of the flat glass processing equipment.

PMCOPS250B

Unit Descriptor

Schedule, cut and bend reinforcement

This competency covers the interpretation of plans (steel drawings') and the cutting, bending and testing of reinforcing steel for manufactured concrete products.

This competency is typically performed by operators working either independently or as part of a work team.

This unit has no prerequisites.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Interpret plan/steel drawing/ specifications. | 1.1 Recognise steel sizes and types required
1.2 Interpret steel dimensions
1.3 Check cover to steel is adequate and report if not
1.4 Determine steel lengths allowing for bends and bar thickness
1.5 Follow instructions/requirements for cage assembly. |
| 2. Prepare materials and equipment. | 2.1 Determine requirements prior to fabricating
2.2 Read job specification/plan and determine equipment and material requirements
2.3 Check availability of bars and mesh
2.4 Set up templates and equipment in compliance with plan/specifications and work instructions
2.5 Cut, bend and tag reinforcement. |
| 3. Organise quality testing of reinforcement. | 3.1 Arrange for samples of work in progress to be verification tested if specified
3.2 Check reinforcement using go-not go gauges, dimension tolerance, cosmetics and level of standards specification
3.3 Implement test requirements in accordance with standard operating procedures and any legislative or regulatory requirements. |
| 4. Rectify routine problems. | 4.1 Identify the range of faults that can occur during the operation
4.2 Determine and rectify fault causes in accordance with procedures/work instructions
4.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
4.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
4.5 Identify non-routine problems and report to designated person. |

- 5. Control hazards.
 - 5.1 Identify hazards from the job to be done
 - 5.2 Identify other hazards in the work area
 - 5.3 Assess the risks arising from those hazards
 - 5.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	2
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency unit includes -

- understanding reinforcement design drawings
- understanding reinforcement schedules
- understanding reinforcement tags
- bars and mesh
- bars and mesh prepared by reinforcement supplier
- validation of test certificates
- cropping and guillotining of bar and mesh
- bending and other preparation of reinforcement ready for assembly
- using automatic and semi-automatic reinforcement machines.

Typical problems include -

- dimensions and positions of fittings and lugs as they affect reinforcement dimension and shape
- adequate cover of steel
- predicting final size and shape of bent bar reinforcement
- rectifying design and scheduling errors that may not be obvious until items are assembled.

This competency includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Critical aspects

It is essential that the fabrication process be understood and that the importance of critical material properties, specifications and dimensions is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- allowance is made for fittings and lifting lugs to be correctly positioned
- steel coverage is adequate
- dimensions/dimensional tolerance are correct
- appropriate grade of steel is used.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Resource implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

Essential knowledge

Knowledge and understanding of the fabrication process sufficient to recognise problems and take appropriate action.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the fabrication of reinforcement.

Competence includes the ability to:

- apply and describe relevant quality tests
- interpret plans ('steel drawings', reinforcement schedules) and specifications
- make necessary calculations from 'steel drawings'
- choose appropriate bending pin and bending machine set up
- predict final shape/dimension based on bar size/type, bend radius, anchorage requirement, and so on
- distinguish between causes of faults such as:
 - reinforcing
 - design
 - fabrication
 - equipment

as is relevant to the practical operation of the equipment/process/system.

PMCOPS251B

Finish green concrete products

Unit Descriptor

This competency covers the finishing of manufactured concrete products before they have been cured. It covers all finishes applied to concrete before curing (eg, exposed aggregate), and assumes that all manufacturing operations up to final vibration and/or screeding the top surface flat have been covered by other competencies.

This competency is typically performed by operators working either independently or as part of a work team.

This unit has no prerequisites.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Prepare to surface finish green concrete. | 1.1 Check drawings and work orders for finish requirements
1.2 Check product against relevant specification
1.3 Check required condition and set state of concrete
1.4 Prepare/mix surface finish as required
1.5 Prepare finish equipment. |
| 2. Finish surface green concrete as required. | 2.1 Apply finish/spray surface in accordance with procedures
2.2 Inspect surface after initial finishing and patch/rework as required
2.3 Continue finishing/monitor finish as appropriate
2.4 Inspect final finish after appropriate time and make any changes required to meet specification
2.5 Dispose of waste to requirements. |
| 3. Rectify routine problems. | 3.1 Identify the range of faults that can occur during the operation
3.2 Determine and rectify fault causes in accordance with procedures/work instructions
3.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
3.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
3.5 Identify non-routine problems and report to designated person. |
| 4. Control hazards. | 4.1 Identify hazards from the job to be done
4.2 Identify other hazards in the work area
4.3 Assess the risks arising from those hazards
4.4 Implement measures to control those risks in line with procedures. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency unit includes -

- operation of concrete mixers
- measuring of ingredients and additives
- interpretation of formulae/mixing specifications
- matching concrete to specification
- finishing concrete to match samples
- spraying concrete to make exposed aggregate
- applying sealers and curing compounds to wet concrete.

Surface finishes applied to green concrete as cast may include, but are not limited to -

- fine wood float
- rough wood float
- hand steel float
- broomed
- helicopter steel float
- raked finish.
- These surface finishes may be applied before or after veneering.
- The surface finish after veneering may then also require further finish after curing.

Typical problems include -

- off colour batches
- bleeding between concrete mixes
- consistency of veneer and cover
- consistency of spray pattern
- adequacy and consistency of surface finish
- wet patching of surface finish.
- This competency includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Competence is not required in all possible finishing methods, but is required in at least two different finishing methods.

Resource implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

Essential knowledge and enterprise requirements

Knowledge and understanding of concrete and of the veneering and finishing process sufficient to recognise problems and take appropriate action.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the mixing and application of coloured cement and special aggregates.

Competence includes the ability to:

- apply and/or describe:
 - principles of concrete mixing (if mixed by operator)
 - principles of veneer adhesion
 - principles of concrete finishing
- distinguish between causes of faults such as:
 - material
 - mixing
 - application
 - finishing

as is relevant to the practical operation of the equipment/process/system.

Critical aspects

It is essential that the process be understood and that the importance of critical material properties, mixing variables and surface finishing techniques is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- surface finish matches specification and is consistent
- coverage is adequate and consistent
- sealer coverage is adequate and consistent.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

PMCOPS252B

Cast moulded concrete products

Unit Descriptor

This competency covers the casting of complex concrete product moulds. It also includes the fitting of reinforcement and accessories, the operation of vibrating equipment and the interpretation of drawings/plans.

This competency is typically performed by operators working either independently or as part of a work team.

This unit has no prerequisites.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|-----------------------------------|--|
| 1. Set up mould and accessories. | 1.1 Fit reinforcement and fittings according to work instructions
1.2 Pre-stress reinforcement as required
1.3 Strap pipes/accessories down as required
1.4 Inspect mould assembly is to specification
1.5 Check mould for defects and correct if required. |
| 2. Prepare equipment for the mix. | 2.1 Set up tools required
2.2 Set up vibrators to standard
2.3 Ensure concrete dispenser is in action
2.4 Ensure mix is to standard consistency. |
| 3. Cast concrete into moulds. | 3.1 Check casting schedule, job specification and drawings
3.2 Clean, seal and oil moulds as required
3.3 Pour mix into mould at correct speed
3.4 Vibrate according to standard operating procedures
3.5 Finish and cover mould as required
3.6 Clean mould and work site as required by good occupational hygiene practices. |
| 4. Rectify routine problems. | 4.1 Identify the range of faults that can occur during the operation
4.2 Determine and rectify fault causes in accordance with procedures/work instructions
4.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
4.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
4.5 Identify non-routine problems and report to designated person. |
| 5. Control hazards. | 5.1 Identify hazards from the job to be done
5.2 Identify other hazards in the work area
5.3 Assess the risks arising from those hazards
5.4 Implement measures to control those risks in line with procedures. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency unit includes -

- timber, glass fibre, metal casing, latex rubber, plaster and other moulds
- use of hand tools as required
- interpretation of production schedules/work cards as appropriate
- interpreting plans or specifications
- placement of reinforcing and accessories
- placement and stressing of strands
- compaction using vibrating tables and immersion vibrators as appropriate to the enterprise.

This competency includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

Typical routine problems could include -

- interpretation of drawings and matching reinforcement and moulds to drawing
- slippage, breaking of tensioned strands
- compacting product and tight bends/clearances
- wear and tear on mould parts
- loose or missing bolts
- bolt holes
- stretched rubber
- moulds coming apart.

Accessories could include -

- pipes/tubing
- hooks
- cones.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Critical aspects

It is essential that the equipment be understood and that the importance of critical mould properties and dimensions is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- moulds are withdrawn for repair as required
- moulds drawn from the mould store are in good order
- stocks of spares are kept at appropriate levels
- correct moulds available for required jobs
- product is cast with correct amount and grade of concrete
- product is vibrated to give a consistent product without air holes
- products are made consistently in minimum time and with minimum patching
- finishing is within specifications
- good OHS practice is used consistently.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Resource implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

Essential knowledge and enterprise requirements

Knowledge and understanding of moulds and their use sufficient to recognise potential problems in advance of causing reject products.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the assembly of moulds.

Competence includes the ability to:

- apply and/or describe:
 - causes of mould wear
 - results of using worn moulds
 - problems resulting from mould leakage
 - importance of vibration on compaction
 - required concrete cover of reinforcing
 - hazards from pre-stressed reinforcement
- distinguish between causes of faults such as:
 - mould
 - casting/operating
 - concrete mix
 - vibration

as is relevant to the practical operation of the plant.

PMCOPS253B

Finish cured concrete products

Unit Descriptor

This competency covers the finishing of manufactured concrete products after they have been cured. It covers all finishes applied to concrete after curing (eg, blasting, honing, polishing, etching, sealing, painting).

This competency is typically performed by operators working either independently or as part of a work team.

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Check product prior to finishing. | 1.1 Check product identity and finish required
1.2 Check product has been cured and is ready for finishing
1.3 Check type and size of aggregate and any special characteristics of concrete mix
1.4 Check for handling and other damage and report if necessary
1.5 Set up finishing process as required. |
| 2. Undertake initial finishing as required. | 2.1 Do initial finishing over product surface
2.2 Check for consistency, flatness and that other requirements have been met
2.3 Report products which are outside specification or which may not be able to be correctly finished. |
| 3. Finish surface as required. | 3.1 Adjust finishing process as required
3.2 Monitor progress of finishing and readjust as required
3.3 Continue finishing until surface meets specification. |
| 4. Clean and seal coat as required. | 4.1 Clean finished surface as required
4.2 Apply sealer coat as required
4.3 Monitor and adjust sealer coating thickness against relevant specification
4.4 Lift unit into store in accordance with OHS requirements, and support on protective pads. |
| 5. Rectify routine problems. | 5.1 Identify the range of faults that can occur during the operation
5.2 Determine and rectify fault causes in accordance with procedures/work instructions
5.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
5.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
5.5 Identify non-routine problems and report to designated person. |

- 6. Control hazards.
 - 6.1 Identify hazards from the job to be done
 - 6.2 Identify other hazards in the work area
 - 6.3 Assess the risks arising from those hazards
 - 6.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency unit includes, but is not restricted to-

- honing
- polishing
- grit and sand blasting
- graffiti treatments
- applications of paints and sealers
- sprayed finishes on cured concrete
- acid etching
- routine housekeeping and maintenance of equipment and area.

Typical problems include -

- variations in hardness of product
- handling damage
- product not sufficiently flat
- obtaining correct and uniform finish
- selection of correct grit and maintenance of grit supply
- use of correct pressures, machine nozzles/heads
- use of consistent patterns of work
- selection of correct acid strength/time and uniformity of application.

This competency includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

All operations are performed in accordance with standard procedures and work instructions.

The identification and control of hazards and the application of OHS to be in accordance with current, applicable legislation and regulations, and company procedures. All work is carried out at all times in accordance with these requirements.

EVIDENCE GUIDE

Assessment context and methods

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Critical aspects

It is essential that the process be understood and that the importance of critical material properties and surface finishing techniques is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- surface finish matches specification and is consistent
- progress is continuously monitored and final finish is approached smoothly and confidently
- finished surface is cleaned and sealed as required.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Resource implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

Essential knowledge

Knowledge and understanding of concrete and of the finishing process sufficient to recognise problems and take appropriate action.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the finishing process.

Competence includes the ability to:

- apply and/or describe:
 - principles of concrete
 - principles of concrete finishing
- distinguish between causes of faults such as:
 - material
 - product
 - finishing
 - handling

as is relevant to the practical operation of the equipment/process/system.

PMCOPS254B

Spin concrete pipes

Unit Descriptor

This competency covers the operation of pipe spinning equipment and the production of spun concrete pipes.

This competency is typically performed by operators working either independently or as part of a work team.

This unit has no prerequisites.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Assemble and prepare the pipe mould. | <ul style="list-style-type: none"> 1.1 Check mould for distortion, cracks or other defects 1.2 Clean mould cavity and apply stripping agent 1.3 Check and insert reinforcing cage and/or other fitments and secure in accordance with procedures/work instructions 1.4 Check cover to <u>steel</u> and fix or report as appropriate 1.5 Check holding of cage 1.6 Assemble mould and secure in accordance with procedures/work instructions 1.7 Move pipe mould to spinning equipment. |
| 2. Load mould onto pipe spinning equipment. | <ul style="list-style-type: none"> 2.1 Load pipe mould onto spinning equipment 2.2 Check that mould is stabilised and correctly mounted on rollers 2.3 Make adjustments to equipment settings to ensure conformance with procedures/work instructions 2.4 Notify appropriate personnel of intention to start spinning equipment. |
| 3. Spin pipe. | <ul style="list-style-type: none"> 3.1 Conduct additional pre-start checks as required in accordance with procedures/work instructions 3.2 Ensure an adequate supply of the specified concrete mix is available to meet production requirements 3.3 Start spinning equipment in accordance with procedures/work instructions 3.4 Monitor instrument/control panels and adjust rate of spin and material flow as necessary to remain within specified operating parameters 3.5 Make observations of plant and equipment at specified intervals to identify any anomalies in procedures/work instructions 3.6 Maximise product throughput and efficiency to maintain target parameters 3.7 Communicate with appropriate personnel regarding the status of operations in line with enterprise requirements 3.8 Employ safe working practices which conform with OHS and enterprise requirements. |

4. Finish and cure pipe.
 - 4.1 Float/finish pipes as required
 - 4.2 Remove spun pipe and mould from spinning equipment
 - 4.3 Inspect inside diameter of pipe, ends and inside surface finish
 - 4.4 Undertake any repairs to pipe caused by irregularities in material flow
 - 4.5 Move pipe to curing tunnel or kiln in accordance with procedures/work instructions
 - 4.6 Monitor curing of pipe to ensure compliance with enterprise quality requirements
 - 4.7 Remove pipe and mould from curing equipment.
5. Demould pipe.
 - 5.1 Remove any separators, non-permanent inserts, plugs or blinds
 - 5.2 Disassemble mould and release pipe in accordance with safe working practice and procedures/work instructions
 - 5.3 Return mould segments for reuse or storage in accordance with enterprise storage quality requirements.
6. Inspect and store pipe.
 - 6.1 Inspect pipe outside diameter and ends/flanges for defects
 - 6.2 Make allowable repairs in accordance with specification and procedures/work instructions
 - 6.3 Identify and mark pipe with appropriate brand or identification number
 - 6.4 Apply appropriate interior surface coatings or coverings as required by the specification
 - 6.5 Move pipe and store in compliance with enterprise storage quality/quantity requirements.
7. Rectify routine problems.
 - 7.1 Identify the range of faults that can occur during the operation
 - 7.2 Determine and rectify fault causes in accordance with procedures/work instructions
 - 7.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
 - 7.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
 - 7.5 Identify non-routine problems and report to designated person.
8. Control hazards.
 - 8.1 Identify hazards from the job to be done
 - 8.2 Identify other hazards in the work area
 - 8.3 Assess the risks arising from those hazards
 - 8.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency unit includes the operation of all ancillary equipment and the operation of plant using programmable logic controllers (PLCs) where appropriate.

Typical problems include -

- maintaining correct sectional thicknesses and distribution of materials
- selecting optimum spinning speeds and conditions for the size of pipe being produced
- correctly selecting and positioning/securing cages and inserts in moulds.

All operations are performed in accordance with procedures/work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Critical aspects

It is essential that the equipment and process be understood and that the importance of critical material properties is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in reporting the condition to the appropriate individual.

Consistent performance at the required standard should be demonstrated. In particular look to see that:

- types of concrete to be spun and its additives are able to be identified
- individual material feed and distribution systems are understood
- OHS and safe work practices are followed
- mould is carefully checked for defects to ensure it is safe to spin
- unsafe spinning conditions are recognised and appropriate action taken
- mould and pipe transfer movements are monitored and appropriate safe working practices employed
- signage, tags and isolation procedures are conformed to
- basic maintenance and inspection practices are carried out.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Resource implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

Essential knowledge

Knowledge and understanding of the equipment/process sufficient to recognise abnormal operating conditions and alert appropriate individuals.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements, along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the equipment/process.

Competence includes the ability to describe:

- appropriate safety procedures concerning the operation of the equipment
- procedures relating to the reporting of hazardous conditions
- appropriate shut down procedures

as is relevant to the practical operation of the equipment.

PMCOPS255B

Conduct benching operations

Unit Descriptor

This competency covers the conducting of concrete benching operations and the production of special purpose concrete drainage components.

This competency is typically performed by operators working either independently or as part of a work team.

This unit has no prerequisites.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Determine the shape of the work piece. | 1.1 Check the specification, drawing or client instructions
1.2 Calculate the angle of decline to be applied to the work piece
1.3 Determine the number of access and egress points to facilitate movement of liquids through the work piece
1.4 Identify and obtain components, reinforcing and/or other fitments as required by the specification. |
| 2. Assemble and prepare the work piece. | 2.1 Establish a safe working environment which meets OHS and enterprise requirements
2.2 Identify and prepare the appropriate liner or cover
2.3 Secure and level in accordance with procedures/work instructions
2.4 Check that the base is stabilised and correctly mounted as required to facilitate lifting or moving
2.5 Position components, reinforcing and/or other fitments as required by the specification. |
| 3. Rough cast the work piece. | 3.1 Prepare the concrete mix or obtain the material from the batch preparation unit
3.2 Ensure an adequate supply of material is available to meet production requirements
3.3 Free form the concrete inside the work piece to meet the rough dimensions required by the specification
3.4 Ensure that components, reinforcing and/or other fitments do not move during rough casting
3.5 Employ safe working practices which conform with OHS and enterprise requirements. |

- 4. Finish the work piece.
 - 4.1 Prepare a finishing mixture for application to the work piece
 - 4.2 Apply the finishing coating, trowelling and sleeking the surface to specification
 - 4.3 Ensure the work piece cures according to procedures/work practices
 - 4.4 Remove any separators, non-permanent inserts, plugs or blinds
 - 4.5 Release work piece in accordance with safe working practice and procedures
 - 4.6 Return mould segments for re-use or storage in accordance with enterprise storage quality requirements.

- 5. Rectify routine problems.
 - 5.1 Identify the range of faults that can occur during the operation
 - 5.2 Determine and rectify fault causes procedures/work instructions
 - 5.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
 - 5.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
 - 5.5 Identify non-routine problems and report to designated person.

- 6. Inspect and store products.
 - 6.1 Inspect work piece for defects
 - 6.2 Make allowable repairs in accordance with specifications and procedures/work instructions
 - 6.3 Identify and mark work piece with appropriate brand or identification number
 - 6.4 Apply appropriate surface coatings or coverings as required by the specification
 - 6.5 Move work piece and store in compliance with enterprise storage quality/quantity requirements.

- 7. Control hazards.
 - 7.1 Identify hazards from the job to be done
 - 7.2 Identify other hazards in the work area
 - 7.3 Assess the risks arising from those hazards
 - 7.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	2
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency unit includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

Typical problems include -

- maintaining correct sectional thicknesses and distribution of materials
- maintaining sectional profiles in accordance with specification
- correctly selecting and positioning/securing permanent or non-permanent inserts, plugs or blinds, and/or reinforcing in moulds.

All operations are performed in accordance with procedures/work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the equipment/process sufficient to recognise abnormal operating conditions and alert appropriate individuals.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements, along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the equipment/process.

Competence includes the ability to:

- describe:
 - appropriate safety procedures concerning the handling of work pieces
 - procedures relating to the reporting of hazardous conditions

as is relevant to the practical construction of work pieces.

Critical aspects

It is essential that the equipment and process be understood and that the importance of critical material properties is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in reporting the condition to the appropriate individual.

Consistent performance at the required standard should be demonstrated. In particular look to see that:

- types of concrete and finishing materials are able to be identified
- OHS and safe work practices are followed
- work piece transfer movements are monitored and appropriate safe working practices employed
- basic maintenance and inspection practices are carried out.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Concurrent assessment and prerequisite competencies

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Assessment method and context

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resource implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCOPS256A

Unit Descriptor

Assemble, fabricate and place reinforcement

This competency covers the interpretation of plans (steel drawings) and the fabrication of reinforcement from pre cut and bent steel and the placement of reinforcing steel cages and assemblies for manufactured concrete products.

This competency is typically performed by operators working either independently or as part of a work team.

This unit has no prerequisites.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--------------------------------------|--|
| 1. Prepare for fabrication. | 1.1 Check quantities, type, size and shape of reinforcement supplied against drawings, tags and schedules
1.2 Prepare jigs and/or other assembly aids if applicable. |
| 2. Assemble/fabricate reinforcement. | 2.1 Assemble reinforcement using appropriate fixing method
2.2 Check final dimensions are to specification
2.3 Insert lifting devices, lugs, fittings, bar chairs, nibs, etc, according to standard operating procedures
2.4 Ensure minimum lap sizes are observed where applicable
2.5 Complete cage to enable lifting (if assembled outside the mould)
2.6 Report any non-compliance
2.7 Follow all OHS procedures and work instructions. |
| 3. Rectify routine problems. | 3.1 Identify the range of faults that can occur during the operation
3.2 Determine and rectify fault causes in accordance with procedures/work instructions
3.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
3.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
3.5 Identify non-routine problems and report to designated person. |
| 4. Control hazards. | 4.1 Identify hazards from the job to be done
4.2 Identify other hazards in the work area
4.3 Assess the risks arising from those hazards
4.4 Implement measures to control those risks in line with procedures. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	2
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency unit includes -

- bars and mesh
- bars and mesh prepared by reinforcement supplier
- welding of reinforcement cages
- wire tying of reinforcement cages
- using automatic and semi-automatic reinforcement machines.

Typical problems include -

- dimensions and positions of fittings and lugs
- incorrect cover to steel
- incorrect size and shape of completed reinforcement
- inadequate tying of assembled reinforcement
- undercutting, which can burn part of the steel away
- cropping bar inside a mould which can result in small offcuts of bar falling to the bottom of the mould
- assembling welded cages inside a steel mould which may produce welding spatter on the mould.

This competency includes the operation of all ancillary equipment and the operation of plant using programmable logic controllers (PLCs) where appropriate.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Critical aspects

It is essential that the reinforcement fabrication and placement process be understood and that the importance of critical material properties and specifications is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- fittings and lifting lugs are correctly positioned
- steel coverage is adequate
- dimensions/dimensional tolerance is correct
- appropriate grade of steel is used
- minimum lap sizes are observed where bar and/or fabric must be lapped
- reinforcement is fixed securely by tying or tack welding to prevent movement during casting.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Resources implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

Essential knowledge and enterprise requirements

Knowledge and understanding of the fabrication and placement of reinforcement process sufficient to recognise problems and take appropriate action.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the fabrication of reinforcement.

Competence includes the ability to:

- apply and describe relevant quality tests
- interpret plans, reinforcement designs, schedules, tags and specifications
- predict final shape/dimension based on bar size/type, bend radius, etc
- use appropriate fixing equipment such as tie wires and/or welding
- distinguish between causes of faults such as:
 - reinforcing
 - design
 - fabrication
 - equipment

as is relevant to the practical operation of the equipment/process/system.

PMCOPS257A

Unit Descriptor

Finish casting operation

This competency covers the positioning and fitting of accessories and reinforcement to manufactured concrete products before they have been cured. It also involves the topping up of moulded concrete products and veneering before curing.

This competency is typically performed by operators working either independently or as part of a work team.

This unit has no prerequisites.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT	PERFORMANCE CRITERIA
1. Adjust and level mould and piping.	1.1 Ensure position of mould base is level and stabilized according to standard operating procedures 1.2 Adjust level of pipes and accessories already fitted as required.
2. Position and fit reinforcement and accessories.	2.1 Place reinforcement in green concrete according to work as required 2.2 Place fittings/accessories in concrete to specification.
3. Top up mould and finish.	3.1 Top up and cover mould according to work instructions 3.2 Finish and patch product to specification 3.3 Clean mould and work site as required by good occupational hygiene practices.
4. Rectify routine problems.	4.1 Identify the range of faults that can occur during the operation 4.2 Determine and rectify fault causes by procedures/work instructions 4.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions 4.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions 4.5 Identify non-routine problems and report to designated person.
5. Control hazards.	5.1 Identify hazards from the job to be done 5.2 Identify other hazards in the work area 5.3 Assess the risks arising from those hazards 5.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency may be used to top up and finish manufactured concrete products to specification. It incorporates the positioning and fitting of accessories and reinforcement of these products before they have been cured, and veneering.

This competency unit includes -

- matching concrete to specification
- fitting accessories and reinforcing
- veneering.

Typical accessories include -

- hooks
- pipes
- rubber tubing.

Typical veneering includes -

- screeding
- floating
- helicopter floating
- brushing.

This competency includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

All operations are performed in accordance with standard procedures and work instructions.

The identification and control of hazards and the application of OHS is to be in accordance with current, applicable legislation and regulations, and company procedures. All work is carried out at all times in accordance with these requirements.

EVIDENCE GUIDE

Assessment context and methods

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Critical aspects

It is essential that the process be understood and that the importance of critical material properties, mixing variables, topping up and fitting of accessories is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- reinforcing is fitted according specification
- accessories are fitted as required by work instructions
- moulded product is level, according to specification.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Resource implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

Essential knowledge and enterprise requirements

Knowledge and understanding of concrete and of the topping up and finishing process sufficient to recognise problems and take appropriate action.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the mixing and application of coloured cement.

Competence includes the ability to:

- apply and/or describe:
 - principles of concrete mixing
 - principles of reinforcing concrete to specification
 - principles of fitting accessories to specification
 - principles of concrete product finishing
- distinguish between causes of faults such as:
 - material
 - mixing
 - application
 - finishing

as is relevant to the practical operation of the equipment/process/system.

PMCOPS258A

Unit Descriptor

Demould concrete products

This competency covers the dismantling, reassembling, lubrication and stock control of complex concrete product moulds. It also includes the interpretation of drawings/plans.

This competency is typically performed by operators working either independently or as part of a work team.

This unit has no prerequisites.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---------------------------------------|--|
| 1. Dismantle mould. | 1.1 Remove nuts and bolts as required
1.2 Remove mould. |
| 2. Clean and inspect mould. | 2.1 Identify product faults from visual inspection
2.2 Identify mould faults from visual inspection
2.3 Dismantle mould as per work instructions
2.4 Check condition of all mould parts
2.5 Clean mould parts. |
| 3. Reassemble mould. | 3.1 Identify product to be made
3.2 Interpret mould drawings/plans
3.3 Select and check required mould parts
3.4 Use correct mould set up jig
3.5 Assemble mould as per work instructions
3.6 Place and fix reinforcement cage as required
3.7 Check cover to is adequate and fix or report as required
3.8 Check mould dimensions and tolerance
3.9 Check mould for joint leakage and correct if required. |
| 4. Lubricate mould. | 4.1 Lubricate mould to standard
4.2 Store mould in correct location. |
| 5. Maintain mould part stock control. | 5.1 Check stocks of spare parts
5.2 Advise supervisor of stock required, parts used and date of completed mould. |
| 6. Rectify routine problems. | 6.1 Identify the range of faults that can occur during the operation
6.2 Determine and rectify fault causes in accordance with procedures/work instructions
6.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
6.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
6.5 Identify non-routine problems and report to designated person. |

- 7. Control hazards.
 - 7.1 Identify hazards from the job to be done
 - 7.2 Identify other hazards in the work area
 - 7.3 Assess the risks arising from those hazards
 - 7.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency unit includes -

- timber, glass fibre, metal, plaster, latex rubber and other moulds
- use of hand tools as required
- interpretation of production schedules/work cards as appropriate
- interpreting plans or specifications.

This competency includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

Typical problems include -

- recognition of parts requiring replacement (eg, stretched rubber, missing bolts)
- selection of appropriate mould parts to replace worn parts
- interpretation of drawings and matching reinforcement and moulds to drawing.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Critical aspects

It is essential that the equipment be understood and that the importance of critical mould properties and dimensions is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- moulds are withdrawn for repair as required
- moulds drawn from the mould store are in good order
- stocks of spares are kept at appropriate levels
- correct moulds are available for required jobs
- mould is lubricated to standard
- moulds are made consistently within an appropriate timeframe and with minimum faults
- good OHS practice is used consistently.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Resource implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

Essential knowledge and enterprise requirements

Knowledge and understanding of moulds and their use sufficient to recognise potential problems in advance of causing reject products.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the assembly of moulds.

Competence includes the ability to:

- apply and/or describe:
 - recognition of worn moulds and parts
 - causes of mould wear
 - results of using worn moulds
 - problems resulting from mould leakage
 - required lubrication of mould
 - hazards from prestressed reinforcement
- distinguish between causes of faults such as:
 - mould
 - casting/operating
 - concrete mix
 - vibration

as is relevant to the practical operation of the plant.

PMCOPS260B

Batch mix concrete

Unit Descriptor

This competency covers the selection and mixing of materials to make different grades and amounts of concrete to meet production requirements following standard procedures. It includes both wet and dry batching.

In a typical scenario an operator runs concrete batching equipment to meet the requirements of the production schedule and product specifications. The operator is able to read interpret these requirements and will make necessary adjustments to meet the specifications. This competency is typically performed by operators working either independently or as part of a team.

Unit Sector

This unit has no prerequisites.

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Determine mix requirements. | <ul style="list-style-type: none"> 1.1 Check work schedule/job specification/job card 1.2 Select correct type and quantity of materials 1.3 Meet all special requirements and specifications 1.4 Identify any material handling problems and take action to <u>procedures</u> 1.5 Update material records as appropriate. |
| 2. Batch mix raw materials. | <ul style="list-style-type: none"> 2.1 Set up and operate mixing equipment to specifications and procedures 2.2 Prepare materials and add to mixer as required by specifications and procedures 2.3 Check that materials prepared match batch requirements 2.4 Use ancillary equipment as required according to procedures 2.5 Mix batch to obtain required results. |
| 3. Monitor batch mixing process. | <ul style="list-style-type: none"> 3.1 Check and adjust settings as required 3.2 Make routine checks and recognise developing problems 3.3 Recognise equipment in need of maintenance/repair 3.4 Take sample and interpret test results as required 3.5 Take appropriate action to ensure continuing quality production to <u>procedures</u> 3.6 Complete all required records. |
| 4. Maintain batch mixing plant and area. | <ul style="list-style-type: none"> 4.1 Keep area and equipment clean and in good order 4.2 Unload and shut down equipment as required 4.3 Respond to routine faults to procedures 4.4 Report non-routine faults to procedures. |

- 5. Rectify routine problems.
 - 5.1 Identify the range of faults that can occur during the operation
 - 5.2 Determine and rectify fault causes in accordance with procedures
 - 5.3 Identify and rectify equipment failure causes in accordance with procedures
 - 5.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures
 - 5.5 Identify non-routine problems and report to designated person.

- 6. Control hazards.
 - 6.1 Identify hazards from the job to be done
 - 6.2 Identify other hazards in the work area
 - 6.3 Assess the risks arising from those hazards
 - 6.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency unit includes the batch mixing of concrete using a range of pans/mixers and for a range of purposes. It is intended to apply to batching plants as used by the premix and/or manufactured concrete products industries. It is NOT intended to apply to the use of manually charged/discharged concrete mixers such as might be used by builders.

PMCOPS103B Operate equipment applies to those mixers.

It may, or may not, include the addition of water as one of the materials.

Typical problems include -

equipment malfunction

raw material specifications

mixing tolerance

uniform dispersion of minor ingredients/additives

mixing to colour/other special requirements

matching mixes produced with production requirements

adjusting mix formula to compensate for variations in raw materials (eg, sand moisture content).

This competency includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

All operations are performed to procedures.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, those parts of elements 4 and 5 referring to dealing with problems). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

Competence must be demonstrated in the ability to recognise situations requiring action and then in implementing appropriate corrective action. Consistent performance should be demonstrated. In particular look to see that:

- batches are produced on time and in specification
- upstream and downstream communication is timely and effective
- problems are anticipated and appropriate action is taken (ie, problem fixed or reported).

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

This unit has no prerequisite competencies.

This unit may be assessed in conjunction with:

- PMCSUP180A Organise self
- PMCSUP181A Work in a team.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes. In remote operations, this person may also need scheduling and other material ordering and handling competencies.

Essential knowledge

Knowledge and understanding of the equipment sufficient to recognise potential problems and to take appropriate action.

Knowledge of the enterprise's procedures and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the equipment.

Competence includes the ability to:

- apply and/or describe:
 - principles of mixing these products
 - impact of variations in raw materials on final product
 - impact of mixing on final product
 - enterprise production schedules
- distinguish between causes of faults such as:
 - raw material
 - equipment
 - mixing time/technique

as is relevant to the practical operation of the equipment.

PMCOPS261B

Deliver concrete to site

Unit Descriptor

This competency covers the efficient delivery of quality concrete to site by road using an agitator or similar.

In a typical scenario an operator delivers premix concrete to a customer. The operator is able to determine the product requirements from the production schedule and specifications. The operator typically works independently with frequent contact with the base plant. This competency is NOT intended to be used for the delivery of concrete within a site using mobile equipment or overhead cranes.

PMCSUP270A Move materials should be used in these circumstances.

This unit has the prerequisite competencies of:

TDTC497C Drive heavy rigid vehicle (or such other relevant truck driving competency unit as may from time to time be required).

Prerequisite Unit(s)

TDTC497C Drive heavy rigid vehicle

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---------------------------------|--|
| 1. Charge concrete to agitator. | 1.1 Check job requirements and charge right job to agitator
1.2 Determine water requirements and add to mix
1.3 Check any special batch requirements and take action required. |
| 2. Deliver concrete. | 2.1 Check slump to procedures
2.2 Deliver concrete within required time and without delay
2.3 Position vehicle as required by safety needs and customer specifications
2.4 Report breakdowns or lengthy delays en route
2.5 Maintain product quality as per requirements and procedures. |
| 3. Conform to site protocols. | 3.1 Check access to site with customer
3.2 Assess site conditions and then drive off road in a manner suited to the conditions, load and site requirements
3.3 Mix concrete on site as per quality requirements
3.4 Discharge concrete as required by customer
3.5 Clean agitator on site after negotiating this with customer
3.6 Complete all records including addition of water. |
| 4. Rectify routine problems. | 4.1 Identify the range of faults that can occur during the operation
4.2 Determine and rectify fault causes in accordance with procedures/work instructions
4.3 Identify and rectify equipment failure causes in accordance with procedures
4.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures
4.5 Identify non-routine problems and report to designated person. |

- 5. Control hazards.
 - 5.1 Identify hazards from the job to be done
 - 5.2 Identify other hazards in the work area
 - 5.3 Assess the risks arising from those hazards
 - 5.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency unit includes -

- determining and adding the correct amount of water taking into account required specification and moisture/water already in the mix
- measurement of slump or similar tests
- customer service and product knowledge
- knowledge of relevant road rules and waste disposal requirements.

It does NOT include the driving of the truck (which is a prerequisite).

Typical problems include -

- sites with poor access/unstable soil
- transportation/site delays
- site conflicts
- disposal of agitator washings.

This competency includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

All operations are performed in accordance with standard procedures and work instructions.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, those parts of element 3 referring to dealing with customers). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

Competence must be demonstrated in the ability to recognise situations requiring action and then in implementing appropriate corrective action. Consistent performance should be demonstrated. In particular look to see that:

- concrete is delivered in full, on time and in specification
- there are good relations with the customers
- there is good liaison with the batching plant.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

This unit may be assessed in conjunction with:

- PMCSUP280A Manage conflict at work
- PMCSUP281A Deliver customer service.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Essential knowledge

Knowledge and understanding of the equipment sufficient to recognise problems and the appropriate action to be taken.

Knowledge of the enterprise's procedures and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the equipment.

Competence includes the ability to:

- apply and/or describe:
 - relationship between mixing time/water cement ratio and product quality
 - importance of slump
 - quality procedures
 - handling techniques to maintain quality
 - communicate with customers
 - determine, and meet customer requirements

as is relevant to the practical operation of the equipment.

PMCOPS265A

Prepare asphalt

Unit Descriptor

This competency covers the batching of asphalt using either a batch or continuous plant. It covers the selection, drying and blending of the correct aggregates and blending with bitumen to make the desired grade of asphalt.

This competency is typically performed by operators working either independently or as part of a work team.

Unit Sector

This unit has no prerequisites.

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--------------------------------------|--|
| 1. Determine mix requirements. | <ul style="list-style-type: none"> 1.1 Check work schedule/job specification/job card 1.2 Select correct type and quantity of aggregates and other materials 1.3 Meet all special requirements and specifications 1.4 Identify any material handling problems and take action in accordance with standard procedures 1.5 Update material records as appropriate. |
| 2. Mix asphalt. | <ul style="list-style-type: none"> 2.1 Check set up of equipment as required by specifications and standard procedures 2.2 Set/adjust plant conditions as required for required product 2.3 Feed aggregate to dryer at required rates 2.4 Prepare bitumen and other materials and add to mixer as required by specifications and standard procedures 2.5 Check that materials prepared match requirements 2.6 Use ancillary equipment as required according to standard procedures 2.7 Mix to obtain required results 2.8 Discharge product to asphalt storage/delivery. |
| 3. Monitor asphalt process. | <ul style="list-style-type: none"> 3.1 Check and adjust settings as required 3.2 Make routine checks and recognise developing problems 3.3 Recognise equipment in need of maintenance/repair 3.4 Take sample and interpret test results as required 3.5 Take appropriate action to ensure continuing quality production according to standard procedures 3.6 Complete all required records. |
| 4. Maintain batching plant and area. | <ul style="list-style-type: none"> 4.1 Keep area and equipment clean and in good order 4.2 Unload and shut down equipment as required 4.3 Respond to routine faults according to enterprise procedures 4.4 Report non-routine faults according to enterprise procedures. |

- 5. Rectify routine problems.
 - 5.1 Identify the range of faults that can occur during the operation
 - 5.2 Determine and rectify fault causes in accordance with procedures/work instructions
 - 5.3 Identify and rectify equipment failure causes in accordance with procedures/work instructions
 - 5.4 Make sure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions
 - 5.5 Identify non-routine problems and report to designated person.

- 6. Control hazards.
 - 6.1 Identify hazards from the job to be done
 - 6.2 Identify other hazards in the work area
 - 6.3 Assess the risks arising from those hazards
 - 6.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency unit includes the mixing of asphalt using a range of pug and drum mixers and for a range of purposes. It is intended to apply to batching plants as used by the asphalt industry and may cover batch, continuous, fixed and mobile plants.

Aggregate may include the normal range of gravels and sand as well as RAP (recycled asphalt pavement). It may, or may not, include the addition of special aggregates such as slag, carborundum, lime or crushed garnets.

It covers both the use of natural bitumen such as is obtained from oil refineries and also synthetic bitumen used for coloured asphalt.

Typical problems include -

- equipment malfunction
- raw material specifications
- mixing tolerance
- uniform dispersion of minor ingredients/additives
- mixing to special requirements
- matching mixes produced with production requirements
- adjusting mix formula to compensate for variations in raw materials (eg, aggregate moisture content).

This competency includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

All operations are performed in accordance with standard procedures and work instructions.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the equipment sufficient to recognise potential problems and to take appropriate action.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the equipment.

Competence includes the ability to:

- apply and/or describe:
 - principles of drying of aggregates
 - principles of mixing these products
 - impact of variations in raw materials on final product
 - impact of mixing on final product
 - enterprise production schedules
- distinguish between causes of faults such as:
 - raw material
 - equipment
 - mixing time/technique

as is relevant to the practical operation of the equipment.

Critical aspects

It is essential that the equipment be understood and that the importance of critical material properties and mixing variables is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- product is produced on time and in specification
- upstream and downstream communication is timely and effective
- problems are anticipated and appropriate action is taken (ie, problem fixed or reported).

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Concurrent assessment and prerequisite competencies

This unit may be assessed in conjunction with:

- PMCSUP180A Organise self
- PMCSUP181A Work in a team.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes. In remote operations, this person may also need scheduling and other materials ordering and handling competencies.

**Assessment method,
context and resource
implications**

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCOPS270A

Unit Descriptor

Operate forming equipment

This competency covers the operation of forming equipment in the production of plasterboard, cornice and fibre cement sheet manufacture.

Typically an operator would -

- start up and shut down forming equipment
- undertake changeovers
- monitor and control operation of forming equipment
- maintain and clean process and auxiliary equipment
- make adjustments in accordance with work instructions and defined operational parameters
- undertake routine quality checks of raw materials and raw material supply
- identify and rectify operational problems
- undertake minor maintenance on equipment
- undertake housekeeping
- maintain a safe work area
- complete records and logs.

This competency is typically performed by operators working either independently or as part of a work team. At all times they would be liaising with other members of the team.

This unit has no prerequisites.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Prepare forming equipment for production. | 1.1 Set up line in accordance with work instructions
1.2 Determine product formation requirements from the production program
1.3 Conduct equipment pre-start up procedure and visual checks according to enterprise procedure check list
1.4 Ensure required change parts are in place
1.5 Set up and configure equipment start up functions to comply with standard operating procedures
1.6 Ensure equipment is safe to use. |
| 2. Operate forming equipment. | 2.1 Start up equipment in accordance with work instructions
2.2 Operate equipment to produce product of required shape, dimensions and consistency
2.3 Monitor equipment conditions and adjust to ensure correct product quality
2.4 Monitor and adjust material properties as required
2.5 Record production data as required. |

PMCOPS270A Operate forming equipment

- 3. Rectify routine problems.
 - 3.1 Identify the range of faults that can occur during the operation
 - 3.2 Determine and rectify fault causes by established enterprise procedures/work instructions
 - 3.3 Identify and rectify equipment failure causes in accordance with established enterprise procedures
 - 3.4 Identify non-routine problems and report to designated person.

- 4. Shut down equipment.
 - 4.1 Ensure line is clear of all product and left in a safe manner for start up
 - 4.2 Determine and rectify fault causes in accordance with procedures/work instructions
 - 4.3 Clean work area
 - 4.4 Complete appropriate records and logs
 - 4.5 Shut down equipment in an emergency situation.

- 5. Prepare equipment for cleaning and maintenance.
 - 5.1 Isolate equipment in accordance with work instructions
 - 5.2 Remove any remaining product or materials safely
 - 5.3 Make sure the area is clear and safe for cleaning or maintenance.

- 6. Control hazards.
 - 6.1 Identify hazards from the job to be done
 - 6.2 Identify other hazards in the work area
 - 6.3 Assess the risks arising from those hazards
 - 6.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency unit includes the operation of items of equipment where the operator is expected to demonstrate an understanding of the process and the equipment operation.

The processes covered by this unit include -

- fibre cement board
- plaster board
- machine cornices.

For your plant this may include tools and equipment such as -

- curing ovens
- transfer machines
- scoring
- PBL unwinders/burners
- setting belts
- forming plates/dams
- mixers
- pizza cutters/blades
- hand tools
- safety clothing and equipment.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, element 3 referring to the identification of a range of faults occurring during operation). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

It is essential that the forming equipment be understood and that the importance of critical material properties, settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- process and equipment are operated in accordance with work instructions and process parameters
- quality is monitored to minimise wastage
- start up and shut down occur first time
- signals and alarms are responded to immediately
- process measurements and tests are continually made, observed and interpreted
- all OHS requirements are followed.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of the melting process sufficient to recognise process conditions which will lead to out of specification production and to take appropriate action.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the melting equipment.

Competence includes the ability to:

- apply and/or explain:
 - composition and nature of products being manufactured
 - start up and shut down processes
 - construction and limitations of the equipment
 - identification of required adjustments to keep process within specifications
 - identification of out of specification situations
- distinguish between causes of faults such as:
 - raw material
 - equipment adjustment set up
 - maintenance issues

as is relevant to the practical operation of the forming process.

PMCOPS271A
Unit Descriptor

Operate wet and dry end equipment

This competency covers the operation of wet and dry end equipment in the production of plasterboard, cornice and fibre cement sheet.

Typically an operator would -

- undertake quality checks and quality control
- monitor production process
- set belt
- maintaining constant flow of boards through unloader
- identify and rectify operational problems
- prepare roll-ups
- undertake minor maintenance on equipment
- undertake housekeeping
- maintain a safe work area
- complete records and logs.

This competency is typically performed by operators and team leaders working either independently or as part of a work team. At all times they would be liaising with other members of the team.

This unit has no prerequisites.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---------------------------------------|---|
| 1. Prepare equipment for production. | 1.1 Set up line in accordance with work instructions
1.2 Conduct equipment pre-start up procedure and visual checks according to enterprise procedure check list
1.3 Set up and configure equipment start up functions to comply with standard operating procedures
1.4 Ensure equipment is safe to use. |
| 2. Operate wet end/dry end equipment. | 2.1 Conduct pre-run checks and make adjustments as required
2.2 Start up equipment in accordance with work instructions
2.3 Monitor equipment conditions and adjust to ensure correct product quality
2.4 Ensure equipment is operated in accordance with enterprise procedures
2.5 Record production data as required. |

- 3. Monitor and record operation.
 - 3.1 Monitor equipment performance in accordance with work instructions and manufacturer's specifications
 - 3.2 Monitor non-conforming product against customer specifications
 - 3.3 Adjust and control equipment to ensure correct product quality
 - 3.4 Complete final inspection checks if required
 - 3.5 Complete appropriate records and logs.

- 4. Rectify routine problems.
 - 4.1 Identify the range of faults that can occur during the operation
 - 4.2 Determine and rectify fault causes in accordance with established enterprise procedures/work instructions
 - 4.3 Make sure appropriate records are maintained to meet procedures/work instructions
 - 4.4 Identify non-routine problems and report to designated person.

- 5. Shut down equipment.
 - 5.1 Ensure line is clear of all product and left in a safe manner for start up
 - 5.2 Determine and rectify fault causes in accordance with procedures/work instructions
 - 5.3 Ensure work area is clean
 - 5.4 Complete appropriate records and logs
 - 5.5 Shut down equipment in an emergency situation.

- 6. Prepare equipment for cleaning and maintenance.
 - 6.1 Isolate equipment in accordance with work instructions
 - 6.2 Remove any remaining product or materials safely
 - 6.3 Make sure the area is clear and safe for cleaning or maintenance.

- 7. Control hazards.
 - 7.1 Identify hazards from the job to be done
 - 7.2 Identify other hazards in the work area
 - 7.3 Assess the risks arising from those hazards
 - 7.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency unit includes the operation of items of equipment where the operator is expected to demonstrate an understanding of the process and the equipment operation.

The processes covered by this unit include -

- fibre cement board
- plaster board
- machine cornices.

For your plant this may include tools and equipment such as -

- drier
- cooler
- unloader
- bridge conveyor
- split and reject table
- belts
- booker system table
- hand tools
- safety clothing and equipment.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, element 4 referring to the identification of a range of faults occurring during operation). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

It is essential that the forming equipment be understood and that the importance of critical material properties, settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- process and equipment are operated in accordance with work instructions and process parameters
- quality is monitored to minimise wastage
- drying profiles/operations are maintained
- start up and shut down occurs first time
- signals and alarms are responded to immediately
- process measurements and tests are continually made, observed and interpreted
- all OHS requirements are followed.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of the melting process sufficient to recognise process conditions which will lead to out of specification production and to take appropriate action.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the melting equipment.

Competence includes the ability to:

- apply and/or explain:
 - composition and nature of products being manufactured
 - start up and shut down processes
 - construction and limitations of the equipment
 - drying profiles
 - identification of required adjustments to keep process within specifications
 - identification of out of specification situations.
- distinguish between causes of faults such as:
 - raw material
 - equipment adjustment set up
 - maintenance issues

as is relevant to the practical operation of the wet and dry end process.

PMCOPS272A

Unit Descriptor

Produce fibrous plasterboard

In a typical scenario, an operator manufactures fibrous plaster sheeting using a mixture of plaster material and glass fibre. The operator produces much of the product by hand with the full sheets cut to length after the product has set. The process is distinguished by the following features:

- the product is mixed in a batch mixer
- there is a manual mixing of the glass fibre and plaster
- after setting the plaster sheets are air dried to support storage and packing.

The operator:

- governs the mixing operation and ensures the plaster is of the correct consistency and formulation
- ensures the cleanliness of the production process
- manually combines the glass fibre and plaster
- cuts the sheets to size after setting
- turns the sheets out to facilitate final curing.

Generally the operator would be part of a team during the process and while following procedures may be expected to be capable of performing all parts of this competency. At all times they would be liaising and cooperating with other members of the team.

This unit has no prerequisites.

No sector assigned

Unit Sector

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---------------------------------|---|
| 1. Prepare the production area. | 1.1 Ensure the production area is clean and free from debris and waste
1.2 Ensure the production area is ready to receive the plaster mixture and that all equipment is ready
1.3 Apply stripping agent to the production facility to ensure ease of removal of the product after setting of the plaster mix. |
| 2. Mix plaster. | 2.1 Ensure that appropriate materials are available to facilitate mixing and production of plaster mix
2.2 Check that the mixer is clean and free from debris and that there are no obstructions or contaminants present
2.3 Check that the mixing equipment is safe to use
2.4 Introduce materials to the mixer and add temper water to specification
2.5 Mix the plaster for the required time and consistency
2.6 Discharge the mixed plaster from the mixer when it reaches the desired consistency. |

PMCOPS272A Produce fibrous plasterboard

- 3. Produce fibrous plasterboard.
 - 3.1 Insert the glass fibre into the plaster mix
 - 3.2 Form the plasterboard to the desired size and screed off
 - 3.3 Check the plaster sheets for entrapped air or the inclusion of unwanted materials or contamination
 - 3.4 Ensure product is of the required uniform thickness
 - 3.5 Allow the product to dry and prepare to strip the product.

- 4. Strip and finish the product.
 - 4.1 Cut the finished product to the required dimensions
 - 4.2 Strip the product and inspect for imperfections and distortion
 - 4.3 Hang the product for final drying
 - 4.4 Remove the product from the dryer and final inspect
 - 4.5 Stack the product according to size and prepare for storage or shipment.

- 5. Control hazards.
 - 5.1 Identify hazards in mixing and casting areas
 - 5.2 Assess the risks arising from those hazards
 - 5.3 Implement measures to control those risks in line with procedures and duty of care.

- 6. Respond to problems.
 - 6.1 Identify possible problems in equipment or process
 - 6.2 Determine problems needing action
 - 6.3 Determine possible fault causes
 - 6.4 Rectify problem using appropriate solution within area of responsibility
 - 6.5 Follow through items initiated until final resolution has occurred
 - 6.6 Report problems outside area of responsibility to designated person.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	1
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

This unit of competency includes all such items of equipment and unit operations which form part of the plasterboard manufacturing process.

For your plant this may include (select relevant items) -

- mixers
- moulds or formers
- lifting equipment
- cutting equipment
- drying and other equipment integral to the manufacture of fibrous plasterboard.

Typical problems for your plant may include -

- inappropriate material specifications
- introduction of contaminants
- inclusion of air
- distortion or section thickness variations.

The identification and control of hazards and the application of OHS are to be in accordance with current, applicable legislation and regulations, and company procedures. All work is carried out at all times in accordance with these requirements.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency (eg, elements 1 to 4). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of 'what if' scenarios both on the plant (during demonstration of normal operations and walk-throughs of abnormal operations) and off the plant.

Critical aspects

It is essential that the forming equipment be understood and that the importance of critical material properties, settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- process and equipment are operated in accordance with work instructions and process parameters
- quality is monitored to minimise wastage
- drying profiles/operations are maintained
- process measurements and tests are continually made, observed and interpreted
- all OHS requirements are followed.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of the fibrous plaster production process sufficient to recognise process conditions which will lead to out of specification production and to take appropriate action.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the melting equipment.

Competence includes the ability to:

- apply and/or explain:
 - composition and nature of materials being utilised
 - equipment start up and shut down processes
 - drying times and conditions
 - out of specification situations
- distinguish between causes of faults such as:
 - incorrect raw materials
 - equipment maladjustment
 - contamination or poor maintenance

as is relevant to the practical production of fibrous plasterboard.

PMCOPS290A

Use and maintain tools and equipment for refractory operations

Unit Descriptor

This unit covers the maintenance and use of common tools and equipment used for refractory operations.

The resolution of equipment problems or non-conforming situations is restricted to responding in a routine, predetermined manner as specified in the procedures for your plant. All operations are performed to procedures.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Select and set up tools and equipment. | 1.1 Check the information about the required resources is accurate and available for use according to work practices
1.2 Identify incorrect or incomplete information and take the necessary corrective action
1.3 Select and set up the required resources to conform with the information and, where they are unsuitable, take the necessary corrective action. |
| 2. Use tools and equipment. | 2.1 Use appropriate tools and equipment to procedures
2.2 Inspect tools/equipment for wear/damage and rectify or report as appropriate
2.3 Clean tool/equipment and return to correct location after use. |
| 3. Contribute to the provision of a safe work environment. | 3.1 Identify hazards in work area particularly from blending/mixing
3.2 Assess the risks arising from those hazards
3.3 Implement measures to control those risks in line with procedures and duty of care. |
| 4. Control hazards. | 4.1 Identify hazards from the job to be done
4.2 Identify other hazards in the work area
4.3 Assess the risks arising from those hazards
4.4 Implement measures to control those risks in line with procedures. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

Information to be used includes -

- organisational requirements
- oral and written instructions
- manufacturer's technical information.

Corrective action to be taken includes -

- correcting within your own authority
- reporting to the person in charge
- complying with company procedures.

Work practices include -

- setting up, maintaining and using tools and equipment
- interpreting information
- identifying, selecting and setting up tools and equipment
- identifying hazards
- working as an individual organising your own work
- working as part of a team.

Tools and equipment include -

- manual tools and equipment
- powered tools and equipment.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on a practical basis. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulations may be required to allow for timely assessment of parts of this competency unit. Simulation may be based on active scenarios and could include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

To achieve this unit you must provide evidence to show that you are competent in the range of work and can satisfy the performance criteria. The evidence you provide must fulfill the requirements listed below.

Competence must be demonstrated in the ability to recognise situations requiring action and then in implementing appropriate corrective action. Consistent performance should be demonstrated. In particular look to see that:

- situations which are out of the normal, or unusual/unexpected signs of problems or potential problems with the equipment/processes, are recognised
- appropriate action is taken in a timely manner
- hazards are recognised and appropriate action is taken to control risks arising from such hazards.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to suitable equipment over a reasonable period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In most scenarios, it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

It may be appropriate to assess this unit concurrently with:

- PMAOHS100B Follow OHS procedures.

Essential knowledge

Demonstration of competence in this unit must include knowledge of the following:

- the variety of equipment used
- equipment application and its maintenance procedures
- procedures related to this competency
- typical problems with equipment applicable to this competency
- procedures for reporting or dealing with typical equipment problems
- materials sources
- materials types/categorisation
- methods of production
- familiarity with installation techniques
- familiarity with principles of selection
- familiarity with variety of applications.

PMCOPS291A

Prepare for, install and repair refractory brickwork/blockwork

Unit Descriptor

This unit is about:

- interpreting information
- planning, organising and adopting safe and healthy working practices
- preparing and storing materials, tools and equipment
- setting out the works
- installing refractory brickwork/blockwork
- repairing refractory brickwork/blockwork.

This unit has no prerequisites.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Establish the suitability of resources. | 1.1 Check all information conforms with resources
1.2 Report any inaccuracies in information to the person in charge
1.3 Identify and select materials, components, tools and equipment
1.4 Identify hazards associated with materials, components, tools and equipment and take appropriate steps to minimise hazard. |
| 2. Prepare, repair and install refractory brickwork/blockwork. | 2.1 Carry out work practices to comply with the given information and achieve the required specification
2.2 Organise work practices to complete work within the allocated time and to comply with the given information
2.3 Put right any deficiencies in the quality of work by corrective action
2.4 Carry out work practices to comply with the given information to minimise the risk of damage to the work and surrounding work area
2.5 Comply with organisational information when carrying out work practices to maintain safe working procedures. |
| 3. Contribute to controlling hazards in work area. | 3.1 Identify hazards in work area
3.2 Assess risks arising from those hazards
3.3 Take appropriate action to control risks to procedures and duty of care. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This unit covers the installation of refractory brickwork. It includes the use of tools and ancillary equipment and the mixing and application of appropriate mortars.

Brickwork/blockwork may be the total requirements for the job, or it may need to join to moulded or cast refractory.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit. Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

Competence must be demonstrated in the ability to recognise situations requiring action and then in implementing appropriate corrective action. Consistent performance should be demonstrated. In particular look to see that:

- signs of problems or potential problems with the equipment/processes are recognised
- appropriate action is taken in a timely manner
- hazards are recognised and appropriate action is taken to control risks arising from such hazards.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to appropriate equipment over a period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

It may be appropriate to assess this unit concurrently with:

- PMAOHS100B Follow OHS procedures.

Essential knowledge

Demonstration of competence in this unit must include knowledge of the following:

- how to prepare for and install refractory brickwork/blockwork
- the organisation's requirements relating to your responsibilities for installing refractory brickwork/blockwork
- types and characteristics of background surfaces
- methods of preparing background surfaces
- types, uses and operation of tools and equipment
- types of finishes to completed brickwork/blockwork
- types and uses of jointing materials
- methods of jointing
- reasons for avoiding voids in joints
- types of, and reasons for, expansion joints
- types and uses of temporary support
- methods of protecting work during installation
- reasons for, and methods of, providing test panels
- methods of cutting
- safeguards to take during reinstatement work
- methods of removing damaged refractory
- methods of keying and bonding new to existing refractories
- reasons for, and methods of, obtaining seals between new and existing refractory
- materials sources
- materials types/categorisation
- methods of production
- familiarity with installation techniques
- familiarity with principles of selection
- familiarity with variety of applications.

PMCOPS292A

Prepare for and install mouldable refractory materials

Unit Descriptor

This unit is about -

- interpreting information
- planning, organising and adopting safe and healthy working practices
- preparing and storing materials, tools and equipment
- setting out the works
- installing mouldable refractory materials
- repairing mouldable refractory materials.

This unit has no prerequisites.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Establish the suitability of resources. | 1.1 Check all information conforms with resources and pneumatic ramming equipment. |
| 2. Prepare for and install mouldable refractory materials. | 2.1 Prepare backgrounds, eg, cutting out, demolition, keying
2.2 Organise work so as to meet work deadlines
2.3 Install refractory to appropriate procedures
2.4 Carry out remedial work to meet the specifications
2.5 Inform the person in charge that installation and any remedial work have been completed
2.6 Store tools and equipment following organisational requirements for current legislation and official guidance. |
| 3. Contribute to controlling hazards in work area. | 3.1 Identify hazards in work area
3.2 Assess risks arising from those hazards
3.3 Take appropriate action to control risks to procedures and duty of care. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This unit covers the installation of mouldable refractory. It includes the use of tools and ancillary equipment and the mixing and application of appropriate mortars.

Moulded refractory may be the total requirements for the job, or it may need to join to brick/block or cast refractory.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit. Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

Competence must be demonstrated in the ability to recognise situations requiring action and then in implementing appropriate corrective action. Consistent performance should be demonstrated. In particular look to see that:

- signs of problems or potential problems with the equipment/processes are recognised
- appropriate action is taken in a timely manner
- hazards are recognised and appropriate action is taken to control risks arising from such hazards.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications	Assessment will require access to appropriate equipment for the period of assessment, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.
Other assessment advice	<p>In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.</p> <p>It may be appropriate to assess this unit concurrently with:</p> <ul style="list-style-type: none">• PMAOHS100B Follow OHS procedures.
Essential knowledge	<p>Knowledge and understanding of preparing for and installing mouldable refractory materials including:</p> <ul style="list-style-type: none">• the organisation's requirements relating to responsibilities for installing mouldable refractory materials• types and characteristics of background surfaces• methods of preparing background surfaces• types, uses and operation of tools and equipment• methods of compacting mouldable materials• effects of under- or over-ramming mouldable materials• reasons for anchors and methods of ensuring compaction of mouldable refractory around the anchors• types and methods of finishing the surface of the installed mouldables• types and uses of temporary support/formwork• methods of protecting work during installation• reasons for, and methods of, providing test panels• methods of cutting• safeguards to take during reinstatement work• methods of removing damaged refractory• methods of keying and bonding new to existing refractories• reasons for, and methods of, obtaining seals between new and existing refractory• materials sources• materials types/categorisation• methods of production• familiarity with installation techniques• familiarity with principles of selection• familiarity with variety of applications.

PMCOPS293A

Unit Descriptor

Prepare for and cast refractory materials

This unit is about -

- interpreting information
- planning, organising and adopting safe and healthy working practices
- preparing and storing materials, tools and equipment
- setting out the works
- placing and compacting cast refractory materials
- repairing cast refractory materials.

This unit has no prerequisites.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Establish the suitability of resources. | 1.1 Check all information conforms with resources
1.2 Record discrepancies in information
1.3 Report any inaccuracies in information to the person in charge
1.4 Identify and select materials, components, tools and equipment. |
| 2. Mix, place and compact refractory concrete. | 2.1 Mix concrete
2.2 Place and compact concrete
2.3 Vibrate concrete
2.4 Remove and reinstate damaged refractory concrete
2.5 Provide and remove temporary supports/formwork
2.6 Maintain tools and equipment. |
| 3. Contribute to controlling hazards in work area. | 3.1 Identify hazards in work area
3.2 Assess risks arising from those hazards
3.3 Take appropriate action to control risks in accordance with procedures and duty of care. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This unit covers the casting of refractory. It includes the use of tools and ancillary equipment.

Cast refractory may be the total requirements for the job, or it may need to join to moulded or brick/block refractory.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on appropriate equipment. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit. Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

It may be appropriate to assess this unit concurrently with:

- PMAOHS100B Follow OHS procedures.

Essential knowledge

- methods of preparing background surfaces
- types, uses and operation of tools and equipment
- methods of compacting materials by hand and with vibration equipment
- correct selection and use of anchors
- types and methods of finishing the surface of the concrete
- reasons for, and timing of, dedicated curing and heat-up programs and the consequences for the installed concrete if the program is not correctly followed
- types and uses of temporary support/formwork
- methods of protecting work during installation
- reasons for, and methods of, providing test panels
- methods of cutting
- safeguards to take during reinstatement
- methods of removing damaged refractory
- methods of keying and bonding new to existing refractories
- reasons for, and methods of, obtaining seals between new and existing refractory
- materials sources
- materials types/categorisation
- methods of production
- familiarity with installation techniques
- familiarity with principles of selection
- familiarity with variety of applications.

PMCOPS294A

Prepare for and apply shotcrete for installation

Unit Descriptor

This unit cover the use of the shotcrete technique to apply refractory materials. Shotcrete is often referred to by trade name of guniting and so the process is sometimes referred to as guniting.

This unit is about -

- interpreting information
- planning, organising and adopting safe and healthy working practices
- preparing and storing materials, tools and equipment
- setting out the works
- installing and applying guniting materials
- assembling and operating guniting equipment
- removing and reinstating guniting materials.

This unit has no prerequisites.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Establish the suitability of resources. | 1.1 Check all information conforms with resources
1.2 Record discrepancies in information
1.3 Report any inaccuracies in information to the person in charge
1.4 Identify and select materials, components, tools and equipment. |
| 2. Apply shotcrete to prepared surface. | 2.1 Prepare backgrounds, cutting out, demolition and keying
2.2 Mix shotcrete
2.3 Assemble and operate shotcreting equipment
2.4 Apply shotcrete
2.5 Remove and reinstate damaged shotcrete material
2.6 Maintain tools and equipment. |
| 3. Contribute to controlling hazards in work area. | 3.1 Identify hazards in work area
3.2 Assess risks arising from those hazards
3.3 Take appropriate action to control risks to procedures and duty of care. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This unit covers the shotcreting of refractory. It includes the use of tools and ancillary equipment.

Shotcrete work may be the total requirement for the job, or it may need to join to brick/block, moulded or cast refractory.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on appropriate equipment. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit. Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

It may be appropriate to assess this unit concurrently with:

- PMAOHS100B Follow OHS procedures.

Essential knowledge

- methods of preparing background surfaces
- types, uses and operation of tools and equipment
- types, uses and operation of shotcreting equipment
- types and characteristics of shotcreting materials
- methods of mixing and applying shotcreting materials
- methods of avoiding lamination of applied shotcreting materials
- methods of protecting applied shotcreting material during application and curing
- types and methods of finishing the surface of the shotcrete
- curing shotcrete
- reasons for, and timing of, dedicated curing and heat-up programs and the consequences of the installed concrete if the program is not correctly followed
- types and uses of temporary support/formwork
- methods of protecting work during installation
- reasons for, and methods of, providing test panels
- methods of cutting
- safeguards to take during reinstatement
- methods of removing damaged refractory
- methods of keying and bonding new to existing refractories
- reasons for, and methods of, obtaining seals between new and existing refractory
- materials sources
- materials types/categorisation
- methods of production
- familiarity with installation techniques
- familiarity with principles of selection
- familiarity with variety of applications.

PMCOPS295A
Unit Descriptor

Prepare for, install and repair ceramic fibre

This unit is about -

- interpreting information
- planning, organising and adopting safe and healthy working practices
- installing ceramic fibre
- repairing ceramic fibre.

This unit has no prerequisites.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Establish the suitability of resources. | 1.1 Check all information conforms with resources
1.2 Record discrepancies in information
1.3 Report any inaccuracies in information to the person in charge
1.4 Identify and select materials, components, tools and equipment. |
| 2. Prepare for and install ceramic fibre. | 2.1 Prepare backgrounds, cutting out, demolition, keying
2.2 Install extraction equipment
2.3 Weld anchors using automatic stud guns
2.4 Install ceramic fiber and make correct joints
2.5 Repair ceramic fiber. |
| 3. Contribute to controlling hazards in work area. | 3.1 Identify hazards in work area
3.2 Assess risks arising from those hazards
3.3 Take appropriate action to control risks to procedures and duty of care. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This unit covers the installation of ceramic fibre refractory. It includes the use of tools and ancillary equipment.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on appropriate equipment. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit. Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

It may be appropriate to assess this unit concurrently with:

- PMAOHS100B Follow OHS procedures.

Essential knowledge

- types and characteristics of ceramic fibre
- dust hazards and methods of minimising risks
- types and uses of respiratory equipment
- types and uses of extraction devices
- anchorage systems
- methods of welding anchors to background surfaces
- methods of installing and jointing ceramic fibre
- methods of rigidising surface of installed ceramic fibre
- types and uses of temporary support
- methods of protecting work during installation
- safeguards to take during reinstatement work
- methods of removing damaged refractory
- methods of keying, bonding new to existing
- materials sources
- materials types/categorisation
- methods of production
- familiarity with installation techniques
- familiarity with principles of selection
- familiarity with variety of applications.

PMCOPS300B

Unit Descriptor

Set up and tune a process

This competency covers the setting up and tuning of equipment or a process. Competence in a relevant operational area is a prerequisite. Dealing with non-routine problems is included.

This competency is typically performed by an experienced operator, leading hand or supervisor.

Unit Sector

This unit has a prerequisite of at least one relevant PMCOPS2XX unit.
No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Prepare for equipment/
change parts installation. | 1.1 Identify all safety and emergency procedures
1.2 Shut down equipment in accordance with procedures/work instructions and manufacturer's specifications
1.3 Isolate equipment as per procedures/work instructions
1.4 Remove ancillary equipment in accordance with procedures/work instructions and manufacturer's specifications
1.5 Complete records and logs for removal of equipment or change parts. |
| 2. Prepare the process for
production. | 2.1 Consult the production schedule to determine the product to be manufactured
2.2 Ensure that the raw materials are available as required
2.3 Ensure that the equipment/change parts, ancillaries and fixtures are available as required
2.4 Perform pre-installment equipment preparation according to procedures/work instructions
2.5 Ensure that the equipment is in a safe condition for use. |
| 3. Set up process. | 3.1 Perform checks and tests to product and equipment specifications
3.2 Ensure alignment of all equipment according to product specifications and procedures/work instructions
3.3 Ensure that process/equipment is set up as required for the production schedule. |
| 4. Tune the process. | 4.1 Monitor operation and compare with standard operating procedures for appropriate operation
4.2 Identify any deviation from standard performance
4.3 Identify the cause of the deviation and take action
4.4 Make adjustments to the equipment settings, process conditions or raw materials to bring production into specification
4.5 Continue monitoring operation and making adjustments until product/equipment is within specification. |

- 5. Respond to problems.
 - 5.1 Identify possible routine and non-routine problems in the equipment or process
 - 5.2 Determine problems needing action
 - 5.3 Determine possible fault causes
 - 5.4 Rectify problem using appropriate solution within area of responsibility
 - 5.5 Report problems outside area of responsibility to designated person.

- 6. Control hazards.
 - 6.1 Identify hazards from the job to be done
 - 6.2 Identify other hazards in the work area
 - 6.3 Assess the risks arising from those hazards
 - 6.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

This competency unit includes equipment applicable to any production process in the manufactured mineral product area including -

- clay and ceramics
- concrete
- concrete products
- ceramic crucibles
- cement
- fibre cement
- plasterboard
- ground minerals.

This competency includes tools and equipment such as -

- changeover parts and equipment
- computers
- measuring and recording equipment
- communication equipment
- hand tools
- safety clothing and equipment.

The process includes setting up and tuning equipment for start up, job change and equipment changes in preparation for production.

Plant data includes -

- test results
- instrument/control panel information
- data from physical senses (sight, sound, hearing, etc)
- temperatures, pressures, material flow and discharge rates and effects
- variations to chemical reactions/material modifications

as is applicable to individual plant.

Typical problems include -

- raw materials feed
- equipment alignment
- analysis of all plant data including test results, control instrument data and other observations
- control of temperature within specification
- product quality
- equipment speed
- taking corrective action.

It does not include setting up and tuning processes covered by -

- PMCOPS340B Set up and optimise glass forming process

- PMCOPS341B Set up and optimise flat glass forming process
- PMCOPS342B Set up and optimise cutting and stacking process.

All operations are performed in accordance with standard procedures and work instructions.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the process sufficient to recognise process conditions and situations that will lead to out of specification production.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the process.

Competence includes the ability to:

- apply and/or explain:
 - nature of the product
 - set up and tuning of all equipment
 - start up and shut down processes
 - construction and limitations of the equipment
 - out of specification situations
 - quality problems
- distinguish between following causes of problems:
 - raw materials
 - mechanical
 - electrical/instrument

as is relevant to the set up and tuning of a process.

Critical aspects

It is essential that the equipment be understood and that the importance of critical material properties, settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- set up/tuning are completed to specifications and within timeframe
- temperature and pressures are maintained within limits
- quality is monitored to minimise wastage
- start up and shut down occurs first time
- signals and alarms are responded to immediately
- process measurements are continually made or observed
- adjustments made are completed in a timely manner in accordance with work instructions.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Concurrent assessment and prerequisite competencies

This unit may be assessed concurrently with other relevant units.

Assessment method, context and resource implications

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCOPS301B

Unit Descriptor

Operate centralised process control systems

This competency covers the operation of centralised control systems, such as a control room, which controls the operations of the whole plant.

This competency is typically performed by an experienced operator, leading hand or supervisor.

This unit has prerequisites of at least one relevant OPS200 unit.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Navigate through the control panel system. | 1.1 Use keyboards, track ball and monitor to access control panel
1.2 Use page links to move between graphics
1.3 Acknowledge messages and alarms
1.4 Operate under abnormal conditions
1.5 Access recent information from screen displays
1.6 Record and report control system malfunctions in accordance with procedures/work instructions. |
| 2. Monitor control systems. | 2.1 Call up graphics, trends, message and alarm pages
2.2 Identify the status of individual pieces of equipment from the control panel
2.3 Check historical data (trends and messages)
2.4 Expand trends
2.5 Access relative parameter settings
2.6 Distinguish between high and low priority alarms
2.7 Maintain required operational conditions. |
| 3. Identify cause of variation. | 3.1 Analyse cause(s) of frequent alarms/messages
3.2 Record nature of variations/irregularities in accordance with procedures/work instructions
3.3 Determine the impact of process variations/irregularities and report to appropriate personnel
3.4 Identify maintenance requirements where appropriate
3.5 Request additional sampling or testing. |
| 4. Adjust process conditions. | 4.1 Optimise operating conditions with regard to product(s)
4.2 Optimise plant operation and stability within alarm parameters
4.3 Activate correct sequences to perform plant jobs
4.4 Recognise equipment giving a 'bad signal' or a 'bad measurement' and take action
4.5 Predict possible problems and institutes appropriate corrective action
4.6 Adjust process in response to test results and instrumentation
4.7 Record adjustments and variations to specifications/schedules and report to appropriate personnel. |

- 5. Start up and shut down process.
 - 5.1 Start up and shut down systems from the control panel according to procedures/work instructions
 - 5.2 Start up and shut down individual pieces of equipment from the control panel according to procedures/work instructions
 - 5.3 Select equipment and alter operating conditions, set points and settings
 - 5.4 Activate correct sequences to perform plant jobs.

- 6. Respond to problems.
 - 6.1 Identify possible routine and non-routine problems in the equipment or process
 - 6.2 Determine problems needing action
 - 6.3 Determine possible fault causes
 - 6.4 Rectify problem using appropriate solution within area of responsibility
 - 6.5 Report problems outside area of responsibility to designated person.

- 7. Control hazards.
 - 7.1 Identify hazards from the job to be done
 - 7.2 Identify other hazards in the work area
 - 7.3 Assess the risks arising from those hazards
 - 7.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	1

RANGE STATEMENT

This competency unit includes all the equipment controlled by and operated through a control room. The control room will be a DCS or similar control system.

This competency does not apply to the operation of single units/small groups of equipment controlled by PLCs/PCs.

Typical problems include -

- parts of processes operating outside specification
- equipment malfunctions or operating abnormalities.

All operations are performed in accordance with procedures/work instructions.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the process and system sufficient to recognise abnormal operating conditions and take corrective measures which bring the process or system back to specification.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements, along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the process or system.

Competence includes the ability to:

- distinguish between:
 - normal and abnormal operating conditions
 - process faults and system faults

as is relevant to the practical operation of the equipment/process/system.

Critical aspects

It is essential that the process and system be understood and that the importance of critical settings or readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance at the required standard should be demonstrated. In particular look to see that:

- early warning signs of equipment in need of attention/with potential problems are recognised
- possible causes of a plant trip are recognised and action taken to avoid a trip
- action is taken to ensure equipment is returned to full performance in a timely manner
- obvious problems in other plant areas are recognised and an appropriate contribution made to a solution
- items initiated are followed through until final resolution has occurred.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

**Assessment method,
context and resource
implications**

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCOPS310B

Unit Descriptor

Process raw meal into product

In a typical scenario, an operator in a large plant looks after the preparation and processing of raw meal through a kiln and distribution of the cement/lime product to storage.

Typically an operator would:

- conduct pre-start checks and confirm plant settings in line with SOPs
- start and shut down the process as required
- monitor the process and ensure production parameters are maintained
- identify and rectify operational problems
- ensure product is directed to the appropriate dispersal area
- facilitate output changes.

This competency is typically performed by an experienced operator, leading hand or supervisor. At all times they would be liaising and cooperating with other members of the team.

This unit has the prerequisite of:

PMCOPS210B Operate a Calcining kiln.

PMCOPS210B Operate a Calcining kiln

No sector assigned

Prerequisite Unit(s)

Unit Sector

ELEMENT

PERFORMANCE CRITERIA

- | | |
|-----------------------------------|---|
| 1. Prepare for processing. | 1.1 Notify/keep informed all relevant people about the current status operations and any intention to change this
1.2 Perform all pre-start checks in accordance with standard operating procedures
1.3 Check plant/equipment settings against operating parameters as identified in standard operating procedures. |
| 2. Process raw meal. | 2.1 Commence/continue process operations in accordance with specified operating procedures
2.2 Monitor and check against target parameters instrument/control panels for variations, fluctuations or trends
2.3 Maximise throughput of system while meeting quality target parameters. |
| 3. Distribute product to storage. | 3.1 Monitor and perform necessary adjustments to discharge rate and temperature as required
3.2 Monitor the distribution transport system for efficiency and spillages and take appropriate action as required
3.3 Monitor the distribution of product to the correct storage area and level of product in that area, and redirect as required. |

- 4. Respond to problems.
 - 4.1 Identify possible routine and non-routine problems in the equipment or process
 - 4.2 Determine problems needing action
 - 4.3 Determine possible fault causes
 - 4.4 Rectify problem using appropriate solution within area of responsibility
 - 4.5 Follow through items initiated until final resolution has occurred
 - 4.6 Report problems outside area of responsibility to designated person.

- 5. Control hazards.
 - 5.1 Identify hazards in kiln work area
 - 5.2 Assess the risks arising from those hazards
 - 5.3 Implement measures to control those risks in line with procedures and duty of care.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	1
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

This unit of competency includes all such items of equipment and unit operations which form part of the processing system. For your plant this may include (select relevant items) -

- grinding mills
- pneumatic conveying systems
- slurry pumps
- dust collectors
- mixing and blending silos
- vibrating screens
- kilns
- bulk storage silos
- heat recovery systems.

Typical problems for your plant may include -

- inaccuracies in blending and proportioning of raw materials
- out of specification moisture content of raw materials/slurry
- variations in temperature, time and cooling rates
- variations in feed rates or quantities
- vibration.

The identification and control of hazards and the application of OHS are to be in accordance with current, applicable legislation and regulations, and company procedures. All work is carried out at all times in accordance with these requirements.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency (eg, elements 1 and 3). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of 'what if' scenarios both on the plant (during demonstration of normal operations and walk-throughs of abnormal operations) and off the plant.

Critical aspects

It is essential that the process be understood and that the importance of critical material properties, settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- temperatures are maintained within limits
- quality is monitored to minimise wastage
- process measurements are continually made or observed.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk-through forming part of the response. These assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

- Other assessment advice** In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units. Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.
- Essential knowledge** Knowledge and understanding of the process sufficient to recognise variance from specifications and standard operating procedures and then determine an appropriate action that is consistent with operating guidelines.
- Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements, along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the process.
- Competence includes the ability to:
- apply and/or explain:
 - operation procedures of the kiln and kiln system
 - kiln chemistry
 - material feed, cooling and distribution systems
 - distinguish between causes of faults such as:
 - variations in raw materials
 - variations in feed rates and preparation
 - kiln quality and optimisation practices
 - types of kiln fuels and reactions
 - acceptable ranges of variations
- as is relevant to the practical operation of the process.

PMCOPS320B

Unit Descriptor

Prepare moulds and dies

This competency covers the preparation of moulds and dies, and includes the preparation of cases and frames.

In a typical scenario an operator prepares cases and frames and makes working moulds for specified products. The operator is able to make and check the mould against the procedures or other relevant standards/drawings.

Unit Sector

This unit has no prerequisites.

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|-------------------------------------|--|
| 1. Prepare cases and frames. | 1.1 Check manufacturing schedule to determine type of mould to be made
1.2 Set up materials for case making to procedure
1.3 Make case to specification
1.4 Check case against requirements. |
| 2. Prepare and make working moulds. | 2.1 Pick the required case/frame
2.2 Make the working mould to procedures
2.3 Remove working mould from the case
2.4 Check, finish and store mould to procedures. |
| 3. Prepare dies. | 3.1 Check manufacturing schedule for type of die needed
3.2 Set up materials for die making to <u>procedure</u>
3.3 Make die to specifications
3.4 Remove working die from master die and prepare for use to <u>procedure</u> . |
| 4. Respond to problems. | 4.1 Identify possible routine and non-routine problems in the equipment or process
4.2 Determine problems needing action
4.3 Determine possible fault causes
4.4 Rectify problem using appropriate solution within area of responsibility
4.5 Report problems outside area of responsibility to designated person. |
| 5. Control hazards. | 5.1 Identify hazards from the job to be done
5.2 Identify other hazards in the work area
5.3 Assess the risks arising from those hazards
5.4 Implement measures to control those risks in line with procedures. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency unit covers the making of moulds, models and dies for use in a variety of manufacturing operations, such as -

- concrete products
- clay products
- ceramic products.

Materials may include -

- additives
- body materials
- epoxy resins
- metal strapping
- plaster
- plastic
- release agents
- rubber
- slip
- timber
- water.

Equipment may include -

- block moulds and working moulds
- cases and frames
- hand and power tools
- jigs and fixtures
- master dies
- mixing equipment
- models
- weighing equipment.

This unit was developed for larger production contexts but it may also be relevant to craft practitioners producing ceramic work.

All operations are performed to procedures.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, those parts of element referring to dealing with problems). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

Competence must be demonstrated in the ability to recognise situations requiring action and then in implementing appropriate corrective action. Consistent performance should be demonstrated. In particular look to see that:

- OHS requirements are met
- quality improvement techniques are applied
- emergency procedures are understood and applied
- waste is minimised.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Essential knowledge

Knowledge and understanding of the process sufficient to recognise situations which could cause production problems and take appropriate action.

Knowledge of the enterprise's procedures and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of moulds and dies.

Competence includes the ability to:

- use and maintain all required materials, tools and parts
- diagnose and solve problems involved in the work
- achieve specified quality standards
- communicate effectively with team members, management and other departments
- apply and/or explain:
 - characteristics of different materials
 - requirements from drawings, specifications or job sheets
 - distinguish between causes of faults such as:
 - materials
 - dimensions
 - allowance for shrinkage
 - damage to components

as is relevant to the practical operation of the process.

PMCOPS321B

Unit Descriptor

Set up and tune glazing equipment

This competency covers the setting up and tuning of glaze application equipment or process. Dealing with non-routine problems is included.

In a typical scenario an operator is able to set up and adjust glazing equipment from the requirements as set out in production schedules and specifications. The operator is able to run trials and adjust all of the equipment settings to have the production equipment perform satisfactorily. This competency is typically performed by an experienced operator, leading hand or supervisor.

Unit Sector

This unit has no prerequisites.

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Prepare for glazing equipment set up. | <ul style="list-style-type: none"> 1.1 Identify all safety and emergency procedures 1.2 Shut down equipment to <u>procedures</u> and manufacturer's specifications 1.3 Isolate equipment as per <u>procedures</u> 1.4 Remove ancillary equipment to <u>procedures</u> and manufacturer's specifications 1.5 Complete records and logs for set up of equipment or changing of parts. |
| 2. Prepare the process for production. | <ul style="list-style-type: none"> 2.1 Consult the production schedule to determine the product to be manufactured 2.2 Ensure that the raw materials are available as required 2.3 Ensure that the equipment/change parts, ancillaries and fixtures are available as required 2.4 Perform equipment preparation to procedures 2.5 Ensure that the equipment is in a safe condition for use. |
| 3. Set up process. | <ul style="list-style-type: none"> 3.1 Perform checks and tests to product and equipment specifications 3.2 Ensure alignment of all equipment to product specifications and procedures 3.3 Ensure that process/equipment is set up as required for the production schedule. |
| 4. Tune the process. | <ul style="list-style-type: none"> 4.1 Monitor operation and compare with procedures for appropriate operation 4.2 Identify any deviation from standard performance 4.3 Identify the cause of the deviation and take action 4.4 Make adjustments to the equipment settings, process conditions or raw materials to bring production into specification 4.5 Continue monitoring operation and making adjustments until product/equipment is within specification. |

- 5. Respond to problems.
 - 5.1 Identify possible routine and non-routine problems in the equipment or process
 - 5.2 Determine problems needing action
 - 5.3 Determine possible fault causes
 - 5.4 Rectify problem using appropriate solution within area of responsibility
 - 5.5 Report problems outside area of responsibility to designated person.

- 6. Control hazards.
 - 6.1 Identify hazards from the job to be done
 - 6.2 Identify other hazards in the work area
 - 6.3 Assess the risks arising from those hazards
 - 6.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency unit includes equipment for application of glazes to ceramic or clay products, including -

- automatic spray lines
- robotic spray equipment
- automatic dipping lines
- PLC or other controllers.

This competency includes tools and equipment such as -

- changeover parts and equipment
- computers
- measuring and recording equipment
- communication equipment
- hand tools
- safety clothing and equipment.

The process includes setting up and tuning equipment for start up, job change and equipment changes in preparation for production.

Typical problems include -

- product feed to and from process
- glaze composition and properties
- equipment alignment
- analysis of all plant data
- product quality
- equipment speed
- taking corrective action.

Plant data includes -

- test results
- instrument/control panel information
- data from physical senses (sight, sound, hearing, etc)
- temperatures, pressures, material flow and discharge rates and effects
- variations to glaze composition or behaviour

as is applicable to individual plant.

All operations are performed to procedures.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, those parts of element 4 referring to tuning the process). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

Competence must be demonstrated in the ability to recognise situations requiring action and then in implementing appropriate corrective action. Consistent performance should be demonstrated. In particular look to see that:

- set up/tuning are completed to specifications and within timeframe
- glaze application parameters are maintained within limits
- glaze is applied to specification
- quality is monitored to minimise wastage
- start up and shut down occur first time
- signals and alarms are responded to immediately
- process measurements are continually made or observed
- adjustments made are completed in a timely manner to procedures.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Essential knowledge

Knowledge and understanding of the process sufficient to recognise process conditions and situations that will lead to out of specification production.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the process.

Competence includes the ability to:

- apply and/or explain:
 - glaze properties and composition
 - product properties and requirements for glazing
 - set up and tuning of all equipment
 - start up and shut down processes
 - construction and limitations of the equipment
 - glaze application faults
 - quality problems
- distinguish between following causes of problems:
 - raw materials, including glaze and product
 - set up and tuning
 - mechanical
 - electrical/instrument

as is relevant to the operation of the process.

PMCOPS340B
Unit Descriptor

Set up and optimise glass forming process

In a typical scenario, an operator would set up and tune the glass forming process including technical fault finding and non-routine problem solving, emergency recovery, optimising the process to gain maximum yield, and detailed knowledge of furnace operation and quality issues.

This unit does NOT apply to the set up and optimisation of secondary glass furnace processes, which is covered by PMCOPS341B Set up and optimise glass furnace process.

Typically an operator would:

- set up, monitor and tune equipment for optimum performance
- identify and rectify routine and non-routine operational problems
- adjust and optimise processes to gain maximum yield
- undertake detailed quality measurements and inspections
- implement emergency recovery
- undertake housekeeping
- complete records and logs.

This competency is typically performed by operators working either independently or as part of a work team. At all times they would be liaising with other members of the team.

This unit has the prerequisite of at least one of the following competencies:

- PMCOPS240B Operate melting processOR
- PMCOPS242B Operate blown insulation equipment OR
- PMCOPS243B Operate float forming equipmentOR
- PMCOPS244B Operate fibre forming equipmentOR
- PMCOPS245B Operate container forming equipmentOR
- PMCOPS247B Operate primary annealing equipment

as appropriate to the process.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Prepare for equipment installation. | 1.1 Identify all safety and emergency procedures |
| | 1.2 Shut down equipment in accordance with procedures/work instructions |
| | 1.3 Isolate equipment as per procedures/work instructions |
| | 1.4 Remove ancillary equipment in accordance with procedures/work instructions |
| | 1.5 Complete records and logs for removal of current equipment. |

- | | | | |
|----|---|-----|---|
| 2. | Prepare the process for production. | 2.1 | Consult the production schedule to determine the product to be manufactured |
| | | 2.2 | Ensure that the raw materials are available as required |
| | | 2.3 | Ensure that the equipment change parts, ancillaries and fixtures are available as required |
| | | 2.4 | Perform pre-installment equipment preparation according to procedures/work instructions |
| | | 2.5 | Ensure that the equipment is in a safe condition for use. |
| 3. | Set up process. | 3.1 | Perform checks and tests to product and equipment specifications |
| | | 3.2 | Install and set up appropriate ancillary equipment in accordance with procedures/work instructions |
| | | 3.3 | Ensure alignment of all equipment by performing checks and adjustments according to product specifications and procedures/work instructions |
| | | 3.4 | Ensure that process and equipment is set up as required for the production schedule. |
| 4. | Monitor, interpret data and adjust operation. | 4.1 | Monitor equipment, instruments and control panels and interpret, test results for fluctuations, variations and trends |
| | | 4.2 | Monitor plant and process and deduce conditions of materials in process and products being made |
| | | 4.3 | Determine appropriate action to improve process operation |
| | | 4.4 | Adjust temperature controls, equipment settings, process conditions or raw materials to ensure process parameters are maintained to job specifications |
| | | 4.5 | Check that process operation has improved |
| | | 4.6 | Continue analysing data and making adjustments until desired level of process operation is achieved in accordance with procedures/work instructions and product is within specifications. |
| 5. | Respond to problems. | 5.1 | Identify possible routine and non-routine problems in the equipment or process |
| | | 5.2 | Determine problems needing action |
| | | 5.3 | Determine possible fault causes |
| | | 5.4 | Rectify problem using appropriate solution within area of responsibility |
| | | 5.5 | Report problems outside area of responsibility to designated person. |
| 6. | Shut down equipment. | 6.1 | Shut down equipment in accordance with procedures/work instructions |
| | | 6.2 | Complete appropriate records and logs |
| | | 6.3 | Shut down equipment in an emergency situation. |
| 7. | Control hazards. | 7.1 | Identify hazards from the job to be done |
| | | 7.2 | Identify other hazards in the work area |
| | | 7.3 | Assess the risks arising from those hazards |
| | | 7.4 | Implement measures to control those risks in line with procedures. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

This competency unit includes equipment applicable to forming glass in each of the specific areas of glass products manufacture -

flat glass

insulation, glass wool insulation, laminated blankets, roll and boards

fibreglass, glass filaments

packaging, bottles and jars.

- forming and associated equipment such as -
 - bushings
 - finshields
 - applicators
 - shoe and winder assemblies
 - spinners
 - lapping equipment
 - process water
 - lehr
 - furnace
 - bath
 - fiberisers
 - computers
 - measuring and recording equipment
 - communication equipment
 - hand tools
 - safety clothing and equipment.

The process includes setting up, monitoring and tuning equipment for optimum performance especially during start up, job change and equipment changes.

- raw materials supply
 - equipment alignment
 - analysis of all plant data
 - control of temperature within specification
 - product quality
 - equipment speed
 - taking corrective action.
-
- test results
 - instrument/control panel information
 - data from physical senses (sight, sound, hearing, etc)
 - temperatures, pressures, material flow and discharge rates and effects
 - variations to chemical reactions/material modifications.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case study/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, element 5 referring to responding to routine and non-routine problems occurring during operation). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

It is essential that the equipment be understood and that the importance of critical material properties, settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action. The emphasis should be on the ability to stay out of trouble rather than on recovery from a disaster.

Consistent performance should be demonstrated. In particular look to see that:

- set up/tuning is completed to specifications
- temperature and pressures are maintained within limits
- adjustments made are completed in a timely manner in accordance with procedures/work instructions
- quality is monitored to minimise wastage
- start up and shut down occur first time
- early warning signs of equipment/processes needing attention or potential problems are recognised and dealt with in a timely manner
- process measurements are continually made or observed
- the range of possible causes can be identified and the most likely cause determined
- appropriate action is taken to ensure a timely return to full performance
- obvious problems to related plant areas are recognised and an appropriate contribution made to their solution.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include a range of problems which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of the process sufficient to recognise process conditions that will lead to out of specification production.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them in a manner relevant to the operation of the process.

Competence includes the ability to:

- apply and/or explain:
 - composition and nature of the glass
 - set up and tuning of all equipment
 - start up and shut down processes
 - optimisation of process for yield maximisation
 - energy utilisation
 - importance of atmospheric conditions and effect on process
 - construction and limitations of the equipment
 - out of specification situations
 - quality problems
- distinguish between causes of problems, such as:
 - raw material
 - mechanical
 - electrical/instrument
 - atmospheric

as is relevant to the set up and tuning of a process.

PMCOPS341B
Unit Descriptor

Set up and optimise glass furnace process

In a typical scenario, an operator would implement furnace changeover and monitor and optimise the forming of flat glass, including the rectification of equipment and quality problems.

This unit does NOT apply to the set up and optimisation of primary glass furnace processes, which is covered by PMCOPS340B Set up and optimise glass forming process.

Typically an operator would:

- complete complex changeovers including the removal and refit of tooling if required
- monitor and interpret process data
- adjust and optimise processes to gain maximum yield
- identify and rectify routine and non-routine operational problems
- undertake detailed quality measurements and inspections
- undertake housekeeping
- complete records and logs.

This competency is typically performed by operators working either independently or as part of a work team. At all times they would be liaising with other members of the team.

This unit has no prerequisites.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Remove current equipment and/or tooling. | 1.1 Identify all safety and emergency procedures
1.2 Shut down furnace and ancillary equipment in accordance with work instructions and manufacturer's specifications
1.3 Conduct tests and checks on equipment/tooling prior to removal in accordance with work instructions
1.4 Remove current equipment/tooling in accordance with work instructions and manufacturer's specifications
1.5 Complete records and logs for removal. |
| 2. Install and set up new equipment and/or tooling. | 2.1 Perform checks and tests prior to installation
2.2 Identify any faults in equipment/tooling and take appropriate action
2.3 Install and set up appropriate equipment/tooling for new production process in accordance with work instructions
2.4 Ensure alignment of all equipment and perform checks according to product specifications and work instructions
2.5 Ensure set up and configuration of equipment for start up complies with work instructions
2.6 Perform checks and tests to product and equipment in accordance with work instructions. |

3. Monitor, interpret data and adjust operation.
 - 3.1 Ensure forming equipment start up function complies with work instructions
 - 3.2 Ensure glass forming equipment is operated in accordance with work instructions
 - 3.3 Monitor instruments and control panels, and interpret test results for fluctuations, variations and trends
 - 3.4 Monitor plant and process and deduce conditions of materials in process and products being made
 - 3.5 Determine appropriate action to improve process operation
 - 3.6 Adjust furnace controls to ensure glass parameters are maintained to job specifications
 - 3.7 Check that process operation has improved
 - 3.8 Continue analysing data and making adjustments until desired level of process operation is achieved and product is within specifications in accordance with work instructions.

4. Sample, test and record product data.
 - 4.1 Carry out sampling procedures appropriate to the product and the test in line with enterprise requirements
 - 4.2 Complete appropriate test to enterprise and client requirements
 - 4.3 Identify variations from process parameters and take appropriate action
 - 4.4 Measure/graph and record operating parameters, according to enterprise requirements
 - 4.5 Record test results in hard or electronic form as required by standard procedures and work instructions.

5. Rectify equipment and quality problems.
 - 5.1 Identify the range of equipment and quality faults that can occur during the operation
 - 5.2 Diagnose possible causes of equipment and quality faults
 - 5.3 Rectify cause of equipment failure and quality faults by established enterprise procedures
 - 5.4 Identify and rectify equipment failure causes in accordance with established enterprise procedures
 - 5.5 Make sure appropriate records and log books of equipment operations are maintained to meet enterprise requirements
 - 5.6 Identify non-routine problems and report to designated person.

6. Shut down equipment.
 - 6.1 Shut down equipment in accordance with work instructions
 - 6.2 Complete appropriate records and logs
 - 6.3 Shut down equipment in an emergency situation.

7. Prepare equipment for maintenance.
 - 7.1 Isolate equipment in accordance with work instructions
 - 7.2 Make sure area is clear and safe for maintenance
 - 7.3 Complete all records and logs.

- 8. Control hazards.
 - 8.1 Identify hazards from the job to be done
 - 8.2 Identify other hazards in the work area
 - 8.3 Assess the risks arising from those hazards
 - 8.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

- equipment/tooling which may include -
 - mould
 - lift jet array
 - quench ring
 - press ring
 - tile
 - other production equipment -
 - forming and conditioning equipment
 - computers
 - measuring recording equipment
 - communication equipment
 - hand tools.

- deep bend to deep bend or deep bend to quick sag
- quick sag to quick sag
- advanced press bend to advanced or conventional press bend
- conventional press bend to conventional press bend.

It does NOT include processes involved with

- melting furnaces used in glass production (primary source)
- scientific glass.

- temperature and pressure problems
- equipment problems
- quality problems.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case study/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, element 5 referring to responding to routine and non-routine problems occurring during operation). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

It is essential that the equipment be understood and that the importance of critical material properties, settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action. The emphasis should be on the ability to stay out of trouble than on recovery from a disaster.

Consistent performance should be demonstrated. In particular look to see that:

- set up/tuning are completed to specifications
- temperature and pressures are maintained within limits
- quality is monitored to minimise wastage
- start up and shut down occur first time
- early warning signs of equipment/processes needing attention or potential problems are recognised and dealt with in a timely manner
- process measurements are continually made or observed
- the range of possible causes can be identified and the most likely cause determined
- appropriate action is taken to ensure a timely return to full performance
- obvious problems to related plant areas are recognised and an appropriate contribution made to their solution.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include a range of problems which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of the forming and conditioning equipment and glass quality to customer specifications sufficient to recognise process conditions that will lead to out of specification production.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them in a manner relevant to the operation of the process.

Competence includes the ability to

- apply and/or explain:
 - composition and nature of the glass
 - set up/changeover of all equipment/tooling
 - start up and shut down processes
 - optimisation of process for yield maximisation
 - construction and limitations of the equipment
 - out of specification situations
 - quality problems such as poor optics, excessive breakage, non-uniform break pattern, incorrect cross bend, excessive bow, scratches or poor glass shape
- distinguish between causes of problems, such as:
 - raw material
 - mechanical
 - electrical/instrument

as is relevant to the practical operation of conducting changeovers and forming equipment.

PMCOPS342B
Unit Descriptor

Set up and optimise secondary process

In a typical scenario, an operator would implement set up, monitoring and tuning of equipment or process to optimise performance, including the rectification of non-routine equipment and quality problems.

This unit does NOT apply to the set up and optimisation of primary glass furnace processes, which is covered by PMCOPS340B Set up and optimise glass forming process.

Typically an operator would:

- operate and monitor cutting program to optimise yields
- monitor and interpret process data
- adjust and optimise processes to gain maximum yield
- identify and rectify routine and non-routine operational problems
- complete quality and fault finding inspections
- monitor and control stock movements
- undertake housekeeping
- complete and maintain records.

This competency is typically performed by operators working either independently or as part of a work team. At all times they would be liaising with other members of the team.

This unit has the prerequisite competency of at least one relevant OPS2XX unit of competency as appropriate to the process.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| <p>1. Prepare the process for production.</p> | <p>1.1 Identify all safety and emergency procedures</p> <p>1.2 Shut down all equipment in accordance with work instructions and manufacturer's specifications</p> <p>1.3 Consult the production schedule to determine the product to be manufactured</p> <p>1.4 Ensure that the raw materials are available as required</p> <p>1.5 Ensure that the equipment change parts, ancillaries and fixtures are available as required</p> <p>1.6 Complete records and logs for set up of fabrication equipment.</p> |
|---|---|

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

- flat glass
- insulation, glass wool insulation, laminated blankets, roll and boards
- fibreglass, glass filaments
- packaging, bottles and jars.

- CSM line equipment
- rovings equipment
- robot packer
- edge trimmer
- choppers
- on-line cutting equipment
- on-line stacking equipment
- curing oven
- facing equipment
- computers
- measuring recording equipment
- communication equipment
- hand tools
- safety clothing and equipment.

The process includes setting up, monitoring and tuning equipment for optimum performance especially during start up, job change and equipment changes.

- scientific glass manufacture
- primary manufacturing processes.

- raw materials supply
 - equipment alignment
 - analysis of all plant data
 - product quality
 - equipment problems.
-
- test results
 - instrument/control panel information
 - data from physical senses (sight, sound, hearing, etc)
 - temperatures, pressures, material flow and discharge rates and effects
 - variations to chemical reactions/material modifications.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, element 5 referring to responding to routine and non-routine problems occurring during operation). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

It is essential that the equipment be understood and that the importance of critical material properties, settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action. The emphasis should be on the ability to stay out of trouble than on recovery from a disaster.

Consistent performance should be demonstrated. In particular look to see that:

- set up/changeover/tuning are completed to specifications
- temperature and pressures are maintained within limits
- quality is monitored to minimise wastage
- start up and shut down occur first time
- early warning signs of equipment/processes needing attention or potential problems are recognised and dealt with in a timely manner
- process measurements are continually made or observed
- adjustments are completed in a timely manner
- the range of possible causes can be identified and the most likely cause determined
- appropriate action is taken to ensure a timely return to full performance
- obvious problems to related plant areas are recognised and an appropriate contribution made to their solution.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include a range of problems which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of the equipment and glass quality to customer specifications sufficient to recognise process conditions that will lead to out of specification production.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them in a manner relevant to the operation of the process.

Competence includes the ability to:

- apply and/or explain:
 - composition and nature of the glass
 - set up/changeover and tuning of all equipment
 - start up and shut down processes
 - optimisation of process for yield maximisation
 - construction and limitations of the equipment
 - out of specification situations
 - quality problems such as poor optics, excessive breakage, non-uniform break pattern, incorrect cross bend, excessive bow, scratches or poor glass shape
- distinguish between causes of problems, such as:
 - raw material
 - mechanical
 - electrical/instrument

as is relevant to the setting up and monitoring of a process.

PMCO350B

Unit Descriptor

Produce architectural precast concrete

This competency covers the production of architectural precast concrete products. It includes reinforcement (not prestressed) and the operation of casting and vibrating equipment. The product will generally require finishing and/or veneering once cured.

This competency is typically performed by an experienced operator, leading hand or supervisor working under the supervision of a principal contractor and architect.

This unit has all the following prerequisites:

PMCO3251B Finish green concrete products

PMCO3252B Cast moulded concrete products

PMCO3256A Assemble, fabricate and place reinforcement

PMCO3257A Finish casting operation

PMCO3258A Demould concrete products.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|-------------------------------|--|
| 1. Prepare mould for casting. | 1.1 Check casting schedule, drawings and job specification
1.2 Check finish and veneer requirements for any or all faces, edges or surfaces
1.3 Prepare veneering equipment and formwork to temporarily support veneers and backing concrete. |
| 2. Prepare reinforcement. | 2.1 Check quantities, type, size and shape of reinforcement supplied against drawings and schedules
2.2 Place reinforcement and check concrete covers
2.3 Complete mould assembly
2.4 Insert lifting devices, lugs, fixing and other fittings according to drawings and specifications
2.5 Seal mould. |
| 3. Cast concrete. | 3.1 Ensure that concretes are poured in correct sequence according to work schedule
3.2 Ensure adequate vibration
3.3 Complete casting process to plans and specification
3.4 Prepare test samples/cylinder as required by work instructions
3.5 Screed to a flat, accurate surface in preparation for finishing
3.6 Wet patch as required. |
| 4. Cure product. | 4.1 Cover and cure mould in accordance with standard procedure and any special requirements
4.2 Monitor curing to achieve specified stripping strength. |

- 5. Strip and store product.
 - 5.1 Remove mould parts at appropriate time, with care, and inspect for damage
 - 5.2 Lift unit using appropriate lifting equipment and lifting methods
 - 5.3 Use good OHS practice
 - 5.4 Arrange storage using protective pads to ensure against damage.

- 6. Respond to problems.
 - 6.1 Identify possible routine and non-routine problems in the equipment or process
 - 6.2 Determine problems needing action
 - 6.3 Determine possible fault causes
 - 6.4 Rectify problem using appropriate solution within area of responsibility
 - 6.5 Report problems outside area of responsibility to designated person.

- 7. Control hazards.
 - 7.1 Identify hazards from the job to be done
 - 7.2 Identify other hazards in the work area
 - 7.3 Assess the risks arising from those hazards
 - 7.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	2
Solving problems	2
Using technology	2

RANGE STATEMENT

- placement of reinforcing
- compaction using vibrating tables and immersion vibrators as appropriate to the enterprise
- curing by water, steam, membrane or other heat sources as appropriate to the enterprise
- preparation for (a selected range of) finishing techniques including water washing, retarding, sandblasting, off-form, acid etching, bush hammering, honing, polishing and GRC.

- compact product with tight bends/clearances
- loss of fluids (concrete leakage)
- adjustment to take account of variables such as weather
- variations in cement/water ratio
- backing concrete penetrating veneers.

This competency includes the operation of all ancillary equipment and the operation of plant using programmable logic controllers (PLCs) where appropriate.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and method

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Critical aspects

It is essential that the process be understood and that the importance of critical material properties and design characteristics is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- products are made consistently in minimum time and with minimum patching
- finishing is within specification/example
- good OHS practice is used consistently.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Resource implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

Essential knowledge and enterprise requirements

Knowledge and understanding of the process sufficient to recognise potential problems and take appropriate action.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the process.

Competence includes the ability to:

- apply and/or explain:
 - effect of water-cement ratio on product
 - importance of vibration on compaction
 - required concrete cover of reinforcing
 - concrete sampling and testing procedures
 - nonconformance procedures
- distinguish between causes of faults such as:
 - concrete
 - vibration
 - aggregate size
 - reinforcing design/placement
 - setting/curing time/rate

as is relevant to the practical operation of the process.

PMCOPS351A

Unit Descriptor

Produce structural precast concrete

This competency covers the production of structural precast and prestressed concrete products (eg, beams, girders). It includes reinforcement preparation, and the operation of casting and vibrating equipment. Reinforcement and vibration at this level of competency may be quite complex (eg, formwork techniques, deflected strands, jig reinforcement, end block reinforcement).

This competency is typically performed by an experienced operator, leading hand or supervisor, and would generally involve engineer consultation.

This unit has all the following prerequisites:

PMCOPS251B Finish green concrete products

PMCOPS252B Cast moulded concrete products

PMCOPS256A Assemble, fabricate and place reinforcement

PMCOPS257A Finish casting operation

PMCOPS258A Demould concrete products.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---------------------------------|---|
| 1. Prepare mould for casting. | 1.1 Check casting schedule and job specification
1.2 Clean and oil moulds as per requirements
1.3 Check for mould damage and repair as necessary. |
| 2. Assemble reinforcement cage. | 2.1 Lift preassembled reinforcing sections into mould using good OHS practice
2.2 Assemble additional steel to complete cage to drawings and job specification
2.3 Fit additional items, eg, base plates, tie plates, lifting devices, according to work instructions
2.4 Fit hold-ups and hold-downs as appropriate
2.5 Place voids or ducts according to work specifications
2.6 Run prestressing strands through reinforcing cages as required
2.7 Set up guards and comply with OHS requirements for stressing
2.8 Tension strands to extension dimensions and/or gauge readings according to works or engineer instructions
2.9 Recheck reinforcing cage is in correct position and adjust as necessary. |

- | | |
|------------------------------------|--|
| 3. Close mould and test vibrators. | <ul style="list-style-type: none"> 3.1 Lift mould sides and additional parts into position and secure to specification 3.2 Fit any additional items as required 3.3 Seal mould 3.4 Fit vibrators to start positions 3.5 Test run before casting commences. |
| 4. Pour concrete. | <ul style="list-style-type: none"> 4.1 Begin casting in accordance with work instructions 4.2 Move vibrators and time vibration as required 4.3 Screed top surface flat in preparation for final finish if required 4.4 Patch product as required 4.5 Clean mould and worksite in accordance with OHS requirements. |
| 5. Control concrete quality. | <ul style="list-style-type: none"> 5.1 Test raw materials as required 5.2 Prepare test cylinders and samples as required 5.3 Monitor and control concrete mix to keep within specifications 5.4 Update all records and file all records and supplier certificates in appropriate place 5.5 Raise nonconformance reports as required. |
| 6. Cure product. | <ul style="list-style-type: none"> 6.1 Cover and cure mould and test cylinders in accordance with standard procedures and work instructions 6.2 Monitor curing to achieve specified stripping strength. |
| 7. Strip and store product. | <ul style="list-style-type: none"> 7.1 Test samples to ensure specific strength has been achieved 7.2 Remove mould sides and store ready for cleaning 7.3 If applicable, destress in accordance with work procedures and sequences 7.4 Ensure unit is lifted according to work instructions and moved to store, supported only on points designated on the drawings. |
| 8. Respond to problems. | <ul style="list-style-type: none"> 8.1 Identify possible routine and non-routine problems in the equipment or process 8.2 Determine problems needing action 8.3 Determine possible fault causes 8.4 Rectify problem using appropriate solution within area of responsibility 8.5 Report problems outside area of responsibility to designated person. |
| 9. Control hazards. | <ul style="list-style-type: none"> 9.1 Identify hazards from the job to be done 9.2 Identify other hazards in the work area 9.3 Assess the risks arising from those hazards 9.4 Implement measures to control those risks in line with procedures. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	2
Solving problems	2
Using technology	2

RANGE STATEMENT

- placement of reinforcing, placement and stressing of strands
- compaction using form vibrators, vibrating tables and immersion vibrators as appropriate to the enterprise
- curing by water, steam, membrane or other heat sources as appropriate to the enterprise
- specialised formwork techniques which could involve polystyrene blocks to lighten heavy products
- deflected strands
- jiggging reinforcement
- end block reinforcement
- welding.

- slippage, breaking of tensioned strands
- mould leakage
- compaction in areas with high reinforcement content (end blocks, haunches, etc)
- compact product with tight bends/clearances
- polystyrene blocks (which may be used in formwork to lighten products) may float to surface on vibration
- polystyrene blocks may move sideways undetected, reducing wall thickness
- adjustment to take account of variables such as weather
- variations in cement/water ratio.

This competency includes the operation of all ancillary equipment and the operation of plant using programmable logic controllers (PLCs) where appropriate.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Critical aspects

It is essential that the process be understood and that the importance of critical material properties and design characteristics is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- products are made consistently in minimum time and with minimum patching
- finishing is within specification/example
- good OHS practice is used consistently.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Resource implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

Essential knowledge and enterprise requirements

Knowledge and understanding of the process sufficient to recognise potential problems and take appropriate action.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the process.

Competence includes the ability to:

- apply and/or explain:
 - effect of water-cement ratio on product
 - importance of vibration on compaction
 - required concrete cover of reinforcing
 - hazards from critical stages of prestressing reinforcement (placement, stressing, destressing, cutting, etc)
 - concrete sampling and testing procedures
 - nonconformance procedures
- distinguish between causes of faults such as:
 - concrete
 - vibration
 - aggregate size
 - reinforcing design/placement
 - setting/curing time/rate

as is relevant to the practical operation of the process.

PMCO370A

Design and construct moulds for fibrous plaster products

Unit Descriptor

This competency covers the design and construction of moulds for fibrous plaster products. In a typical scenario a plaster modeller designs from scratch by intuitive means or determines, either from an existing shape or product, the shape of a product to be created in fibrous plaster. The modeller then, by a process of hand carving, creates a negatively shaped mould impression from which a positively shaped fibrous plaster impression would be created.

The moulds may be manufactured from:

- plaster
- timber
- rubber
- metal

or a combination of these.

Typically a plaster modeller would:

- create or copy the image of the of product to be produced and transfer it onto paper
- convert that image from an imagined positively shaped final product to an imagined negatively shaped mould cavity
- select the most appropriate material from which to make the mould
- mount that material to provide a stable and workable platform for creation of the mould and for subsequent movement and handling of the mould
- transfer the image onto the surface of the mould material
- carve a mould cavity which conforms to the image and which meets any specific size requirements, including the creation of any undercuts or cutbacks
- coat the surface of the mould with an appropriate protective coating to ensure it is impervious to moisture.

This competency is typically performed by an experienced modeler, leading hand or supervisor.

This unit has the prerequisite of:

PMCO3224B Hand mould products.

PMCO3224B Hand mould products

No sector assigned

Prerequisite Unit(s)

Unit Sector

ELEMENT	PERFORMANCE CRITERIA
1. Develop mould design.	1.1 Establish original product concept or design from drawings, originals or consultation with the customer 1.2 Sketch out product prototype design and establish product sizes making appropriate allowance for material shrinkage 1.3 Identify areas where undercuts, cutbacks or other special features are required 1.4 Determine parting line 1.5 Determine material from which mould is to be made.
2. Select mould material and prepare for mould production.	2.1 Set up material for mould making, ensuring that the mould can be handled or moved without damage 2.2 Establish datum point and mark out design dimensions using geometric and lineal calculations 2.3 Determine correct cavity depths and contours 2.4 Ensure there is adequate ventilation and light to facilitate an appropriate work environment.
3. Produce working mould.	3.1 Fit appropriate protective equipment to prevent inhalation or irritation of by-products of the mould making process 3.2 Use appropriate tools to carve out mould cavity and detail 3.3 Accurately follow the design detail to produce a mould cavity to specification 3.4 Avoid undercuts which will prevent removal of the plaster product from the mould 3.5 Ensure appropriate degrees of taper are provided to facilitate product removal 3.6 Carve reliefs according to design and remove debris as the work proceeds.
4. Complete mould.	4.1 Clean down completed mould and clean up work area 4.2 Inspect mould surface for defects or irregularities 4.3 Compare design details with mould cavity to confirm accuracy of translation 4.4 Coat mould surface to preserve finish and allow to dry.
5. Produce product prototype.	5.1 Apply slipping agent to mould surface 5.2 Prepare and insert anchors or ties 5.3 Prepare plaster mixture and appropriate amount of glass fibre 5.4 Cast plaster mix and fibre into mould cavity, strike off and allow to set 5.5 Remove prototype from mould or mould from prototype 5.6 Check prototype for dimensional and detail accuracy 5.7 Compare prototype and mould to identify any faults or mould inaccuracies 5.8 Adjust or dress mould to remove imperfections and clean mould surface 5.9 Cast second prototype and recheck product and mould 5.10 Clean up mould and mark in accordance with organisation identification practice.

- 6. Control hazards.
 - 6.1 Identify hazards in modelling work area
 - 6.2 Assess the risks arising from those hazards
 - 6.3 Implement measures to control those risks in line with procedures and duty of care.

- 7. Respond to problems.
 - 7.1 Identify possible routine and non-routine problems in the equipment or process
 - 7.2 Determine problems needing action
 - 7.3 Determine possible fault causes
 - 7.4 Rectify problem using appropriate solution within area of responsibility
 - 7.5 Report problems outside area of responsibility to designated person.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	1
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

This competency unit covers the making of moulds for use in the manufacture of fibrous plaster products.

- additives
- body materials
- epoxy resins
- metal strapping
- plaster
- release agents
- rubber
- timber
- water.

- moulds
- chisels and hand held cutting tools
- hand and power tools
- jigs and fixtures
- personal safety equipment
- mixing equipment
- models
- weighing equipment.

- personal injuries
- complexities of mould design and shape
- lack of appropriate illumination.

The identification and control of hazards and the application of OHS are to be in accordance with current, applicable legislation and regulations, and company procedures. All work is carried out at all times in accordance with these requirements.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency (eg, elements 1 to 5). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of 'what if' scenarios both on the plant (during demonstration of normal operations and walk-throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to recognise situations requiring action and then in implementing appropriate corrective action. Consistent performance should be demonstrated. In particular look to see that:

- OHS requirements are met
- quality improvement techniques are applied
- emergency procedures are understood and applied
- waste is minimised.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications	Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.
Other assessment advice	In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.
Essential knowledge	<p>Knowledge and understanding of the process sufficient to recognise situations which could cause production problems and take appropriate action.</p> <p>Knowledge of the enterprise's procedures and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of moulds and dies.</p> <p>Competence includes the ability to:</p> <ul style="list-style-type: none">• use and maintain all required materials, tools and parts• diagnose and solve problems involved in the work• achieve specified quality standards• communicate effectively with team members, management and other departments• apply and/or explain:<ul style="list-style-type: none">• characteristics of different materials• requirements from drawings, specifications or job sheets• distinguish between causes of faults such as:<ul style="list-style-type: none">• materials faults• dimensional inaccuracies• inappropriate allowance for material shrinkage• damage to components <p>as is relevant to the practical aspects of the process.</p>

PMCOPS372A

Unit Descriptor

Model fibrous plaster products

This competency covers general housekeeping duties, as well as the cleaning of plant and equipment.

This competency is typically performed by all operators working either independently or as part of a work team.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Identify housekeeping requirements. | 1.1 Explain and understand site safety and housekeeping standards
1.2 Undertake housekeeping inspection in accordance with procedures/work instructions
1.3 Identify and schedule housekeeping requirements as appropriate. |
| 2. Perform general housekeeping duties. | 2.1 Keep designated work areas clean to enterprise specific standards
2.2 Keep designated work areas clear of obstructions
2.3 Handle and use chemicals and solvents as per the manufacturers guidelines and company specifications
2.4 Ensure work area is ready for next user
2.5 Remove work materials to designated locations. |
| 3. Clean plant and equipment. | 3.1 Keep assigned plant and equipment clean following established enterprise procedures
3.2 Perform specialised cleaning procedures in strict accordance with standard operating procedures
3.3 Ensure that appropriate personal protective equipment is used as required. |
| 4. Dispose of waste materials. | 4.1 Correctly identify waste materials
4.2 Remove waste materials to a designated location. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	-
Solving problems	1
Using technology	-

RANGE STATEMENT

- cleaning methods and procedures
 - the type of tools and equipment used in special situations
 - the use of personal protective equipment.
-
- cleaning equipment and materials
 - brooms
 - shovels
 - solvents
 - waste containers
 - safety equipment.
-
- correct equipment not immediately available
 - safety issues associated with cleaning
 - ensuring that housekeeping aids rather than interferes with production.

All operations are performed in accordance with standard procedures and work instructions.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the process sufficient to recognise non-standard situations and then determine an appropriate action which is consistent with operating guidelines.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements, along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the process.

Competence includes the ability to:

- apply and describe:
 - duty of care
 - requirements for housekeeping process
 - procedures for plant maintenance
 - safe handling procedures
 - the standard of cleanliness required
- distinguish between:
 - reusable materials and waste
 - routine and special cleaning needs

as is relevant to the practical operation of the process.

Critical aspects

It is essential that the process be understood and that the importance of good housekeeping known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- early warning signs of areas in need of cleaning are recognised
- work areas are kept tidy and clean
- equipment is neatly stored, in a safe manner, in the correct location at all times when not in use
- equipment is always tidy and safe when in use.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Concurrent assessment and prerequisite competencies

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Assessment method, context and resource implications

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCOPS380A
Unit Descriptor

Set up and optimise finishing process

In a typical scenario, an operator would set up, monitor and tune equipment or process to optimise performance, including the rectification of non-routine equipment and quality problems.

Typically an operator would:

- monitor and interpret process data
- adjust and optimise processes to gain maximum yield
- identify and rectify routine and non-routine operational problems
- complete quality and fault finding inspections
- monitor and control stock movements
- undertake housekeeping
- complete and maintain records.

This competency is typically performed by operators working either independently or as part of a work team. At all times they would be liaising with other members of the team.

This unit has the prerequisite competencies of:

PMCOPS201B Operate a unit of equipmentOR

PMCOPS204B Prepare for production

as appropriate to the process.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Prepare the process for production. | 1.1 Identify all safety and emergency procedures
1.2 Shut down all equipment in accordance with work instructions and manufacturer's specifications
1.3 Consult the production schedule to determine the product to be manufactured
1.4 Ensure that the raw materials are available as required
1.5 Ensure that the equipment change parts, ancillaries and fixtures are available as required
1.6 Complete records and logs for set up of finishing equipment. |
| 2. Set up finishing process. | 2.1 Perform checks and tests to product and equipment specifications
2.2 Ensure alignment of all equipment by performing checks and adjustments according to product specifications/work instructions
2.3 Ensure that process and equipment is set up as required for the production schedule
2.4 Ensure that the equipment is in a safe condition for use. |

3. Monitor, interpret data and adjust operation.
 - 3.1 Monitor instruments and control panels, and interpret test results for fluctuations, variations and trends
 - 3.2 Monitor plant and process and deduce conditions of materials in process and products being made
 - 3.3 Determine appropriate action to improve process operation
 - 3.4 Adjust controls to ensure product parameters are maintained to job specifications
 - 3.5 Check that process operation has improved
 - 3.6 Continue analysing data and making adjustments until desired level of process operation is achieved and product is within specifications in accordance with work instructions.

4. Sample, test and record product data.
 - 4.1 Carry out sampling procedures appropriate to the product and the test in line with enterprise requirements
 - 4.2 Complete appropriate test to enterprise and client requirements
 - 4.3 Measure/graph and record operating parameters, according to enterprise requirements
 - 4.4 Record test results in hard or electronic form as required by standard procedures and work instructions.

5. Rectify equipment and quality problems.
 - 5.1 Identify the range of equipment and quality faults that can occur during the operation
 - 5.2 Determine and rectify equipment and quality fault causes in accordance with established enterprise procedures
 - 5.3 Identify and rectify equipment failure causes in accordance with established enterprise procedures
 - 5.4 Make sure appropriate records and log books of equipment operations are maintained to meet enterprise requirements
 - 5.5 Identify non-routine problems and rectify within area of responsibility
 - 5.6 Report problems outside area of responsibility to designated person.

6. Shut down equipment.
 - 6.1 Shut down equipment in accordance with work instructions
 - 6.2 Complete appropriate records and logs
 - 6.3 Shut down equipment in an emergency situation.

7. Control hazards.
 - 7.1 Identify hazards from the job to be done
 - 7.2 Identify other hazards in the work area
 - 7.3 Assess the risks arising from those hazards
 - 7.4 Implement measures to control those risks in line with procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

- sanding
- sealing
- priming
- rebating.

- finishing and associated equipment
- computers
- measuring and recording equipment
- communication equipment
- hand tools
- safety clothing and equipment.

The process includes setting up, monitoring and tuning equipment for optimum performance especially during start up, job change and equipment changes.

- raw materials supply
- equipment alignment
- analysis of all plant data
- product quality
- equipment problems.

- test results
- instrument/control panel information
- data from physical senses (sight, sound, hearing, etc)
- temperatures, pressures, material flow and discharge rates and effects
- variations to chemical reactions/material modifications.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case study/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, element 5 referring to responding to routine and non-routine problems occurring during operation). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

It is essential that the equipment be understood and that the importance of critical material properties, settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action. The emphasis should be on the ability to stay out of trouble rather than on recovery from a disaster.

Consistent performance should be demonstrated. In particular look to see that:

- set up/changeover/tuning are completed to specifications
- plant conditions are maintained within limits
- quality is monitored to minimise wastage
- start up and shut down occur first time
- early warning signs of equipment/processes needing attention or potential problems are recognised and dealt with in a timely manner
- process measurements are continually made or observed
- adjustments are completed in a timely manner
- the range of possible causes can be identified and the most likely cause determined
- appropriate action is taken to ensure a timely return to full performance
- obvious problems to related plant areas are recognised and an appropriate contribution made to their solution.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include a range of problems which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of the equipment and product quality to customer specifications sufficient to recognise process conditions that will lead to out of specification production.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them in a manner relevant to the operation of the process.

Competence includes the ability to:

- apply and/or explain:
 - composition and nature of the product
 - set up/changeover and tuning of all equipment
 - start up and shut down processes
 - optimisation of process for yield maximisation
 - construction and limitations of the equipment
 - out of specification situations
 - quality problems such as poor optics, excessive breakage, non-uniform break pattern, incorrect cross bend, excessive bow, scratches or poor glass shape
- distinguish between causes of problems, such as:
 - raw material
 - mechanical
 - electrical/instrument

as is relevant to the setting up and monitoring of a process.

PMCOPS390A

Unit Descriptor

Test refractory materials

This unit is expected to be replaced by the relevant unit from the Laboratory Operations Training Package when it is endorsed.

This unit is about -

- familiarity with national and international standards
- familiarity with common physical tests
- understanding their interaction.

This unit has no prerequisites.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Establish the suitability of resources. | 1.1 Check all information conforms with resources
1.2 Record discrepancies in information
1.3 Reporting any inaccuracies in information to the person in charge
1.4 Identify and select materials, components, tools and equipment. |
| 2. Select and follow appropriate standards. | 2.1 Select appropriate Australian Standard where relevant
2.2 Select appropriate ISO standard where relevant
2.3 Select appropriate ASTM standard where relevant
2.4 Select appropriate JSO/DIN standard where relevant
2.5 Select appropriate standard for the test being conducted. |
| 3. Conduct physical tests. | 3.1 Compression test samples
3.2 Determine modulus of rupture from test data
3.3 Test thermal conductivity
3.4 Test density and porosity
3.5 Test abrasion. |
| 4. Control hazards. | 4.1 Identify hazards from the job to be done
4.2 Identify other hazards in the work area
4.3 Assess the risks arising from those hazards
4.4 Implement measures to control those risks in line with procedures. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on appropriate exercises. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations, materials and applications.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit. Simulation should be based on situations as close to real as possible, and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Resource implications

Assessment will require access to an operating plant for some period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

It may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

It may be appropriate to assess this unit concurrently with:

- PMAOHS100B Follow OHS procedures.

Essential knowledge

- standard test methods
- national/international standards
- the relationships between these factors.

PMCOPS400B

Unit Descriptor

Optimise process systems

This competency covers the ability to optimise the performance of a complete production section. It includes ensuring that production systems comply with OHS requirements, that process, plant and equipment utilisation is planned and carried out, and that problems are solved to fully meet operational needs and ensure that production of finished goods meets customer requirements.

This competency requires the application of detailed operational and process knowledge, including the principles of operation of equipment, and the chemistry and/or physics of changes to materials occurring during processing. It embodies a breadth and depth of technical knowledge and process understanding significantly greater than the series 300' competencies.

Assessment of this competency should ensure that the applicant can apply this knowledge to a process, and should typically rely on the applicant undertaking, or leading, a significant process improvement project.

This competency is typically performed by a senior operator, team leader or frontline manager.

This unit has prerequisites of:

PMASUP390A Use structured problem solving tools AND

At least one relevant PMCOPS3XX unit.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| <p>1. Analyse and evaluate current plant and equipment.</p> | <p>1.1 Compare actual process, plant and equipment performance with requirements and/or historical data/records</p> <p>1.2 Identify abnormal or sub-optimal process, plant and equipment performance</p> <p>1.3 Identify <u>hazards</u> associated with the plant and equipment</p> <p>1.4 Collect and evaluate batch and/or historical records to determine possible causes for sub-optimal performance</p> <p>1.5 Use appropriate techniques to rank possible causes from most to least probable cause.</p> |
|---|---|

- 2. Develop plan for corrective and/or optimisation action.
 - 2.1 Analyse cause(s) to determine appropriate corrective action
 - 2.2 Predict the impact of a change in one unit/area on other related plant units/areas
 - 2.3 Predict the impact of a change on health, safety and environmental performance
 - 2.4 Develop measurable objectives and evaluate alternatives
 - 2.5 Identify requirements to implement change
 - 2.6 Consult with stakeholders regarding planned changes and impacts
 - 2.7 Develop optimisation plan taking account of hazards identified and OHS and environmental implications and communicate to appropriate personnel
 - 2.8 Evaluate optimisation action to determine effectiveness.

- 3. Coordinate corrective and/or optimisation action plan.
 - 3.1 Coordinate all appropriate unit areas and operations in order to rectify problem causes in process, plant and equipment performance
 - 3.2 Initiate and/or implement all required corrective/optimisation actions
 - 3.3 Communicate corrective/optimisation outcomes to all relevant personnel
 - 3.4 Implement procedures/systems to eliminate possible future causes
 - 3.5 Record and maintain log of all relevant information.

- 4. Develop continuous improvement strategies.
 - 4.1 Review sources of information to identify possible factors causing sub-optimal performance
 - 4.2 Identify options for removing or controlling the risk of sub-optimal performance
 - 4.3 Assess the adequacy of existing control and quality methods and systems
 - 4.4 Identify opportunities to continuously improve performance
 - 4.5 Develop recommendations for continual improvement of process, plant and equipment effectiveness
 - 4.6 Consult with appropriate personnel and implement continuous improvement strategies
 - 4.7 Document implementation of continuous improvement strategies.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	3
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	3
Solving problems	3
Using technology	3

RANGE STATEMENT

This unit of competency describes the work conducted by senior operators, team leaders or front line managers who optimise process systems as part of their work function. It includes all items of equipment and unit operations which form part of the production process of a complete area.

Typical problems will require the application of detailed operational and process knowledge over the entire production/manufacturing area including the principles of operation of the equipment and the chemistry and/or physics of the changes to materials occurring within that area.

All operations are performed in accordance with enterprise procedures, licensing requirements, legislative requirements and industrial awards and agreements.

- starting material quality
 - yield maximisation
 - throughput maximisation
 - energy efficiency
 - use of utilities
 - labour utilisation
 - overall cost
 - efficient use of equipment
 - reducing downtime
 - minimisation of waste and rework
 - improved workplace layout and workflow.
-
- industry codes of practice
 - materials safety data sheets
 - equipment manuals
 - equipment start up, operation and shut down procedures
 - calibration and maintenance schedules
 - quality manuals and procedures
 - enterprise recording and reporting procedures
 - production and laboratory schedules
 - material, production and product specifications.
-
- hazard logs
 - incident reports
 - maintenance records
 - product non-conformance reports
 - production records.
-
- changes to procedures
 - training of operators
 - equipment modifications
 - ensuring all OHS requirements are addressed.
-
- managers
 - OHS representatives and OHS committee.
-
- modifications to plant or equipment
 - modifications to procedures or practices.

- hazard logs
- incident reports
- maintenance records
- work practices
- procedures
- industry journals
- equipment supplier information
- industry best practice information.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Competence must be demonstrated in the ability to analyse and evaluate current production performance, and develop and implement plans to optimise process systems.

While the technician is expected to take a lead technical role, and to demonstrate competence as defined above, optimization is rarely undertaken by an individual alone and liaison with all relevant stakeholders is an expected part of this competency.

Knowledge and understanding of the equipment, processes and systems should be sufficient to identify hazards associated with the process and recognise opportunities to improve and/or enhance the quality of performance of the plant. This knowledge needs to include the relevant technical theory of the plant area and to be in depth across the entire plant area as appropriate to process system optimisation. It includes knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements including those related to OHS risk control, along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the equipment, processes and systems.

Competence includes the ability to:

- apply analytical skills which enable corrective or optimal conditions to prevail
- identify and control hazards by applying the hierarchy of control as part of the optimisation process
- interpret information and make appropriate process control decisions
- distinguish between:
 - optimum and marginal performance of the plant
 - effective and marginal performance corrections and actions

as is relevant to the practical operation of all major equipment/process/systems within the area.

Critical aspects

It is essential that the equipment/process/system be understood in depth and that the importance of critical material properties/settings/readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- non-routine problems are recognised and defined
- hazards are identified and controlled by applying the hierarchy of control
- possible causes of complex problems are identified based on experience and the use of analytical techniques in solving the problem, including identifying variations and cause, separating single problems from multiple problems and the recognition of recurring problems
- fundamental cause of process or equipment faults is determined
- corrective/preventative actions are developed to avoid recurrence of the problem and optimise the condition of the process, plant and equipment
- product quality and uniformity are maintained.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Concurrent assessment and prerequisite competencies

This unit may be assessed concurrently with other relevant units.

**Assessment method,
context and resource
implications**

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCOPS420C

Unit Descriptor

Design and prepare models, moulds and dies

This competency covers the design and preparation of models, moulds, and dies, and includes the preparation of cases and frames.

In a typical scenario an operator or tradesperson determines the requirements for the devices to be made from plans, specifications and schedules. The operator is able to make the device, adjust and check its dimensional accuracy, from materials selected. Often the devices are made from timber, but other materials, including sheet metal and fibreglass, for instance are possible. This competency is typically performed by an experienced operator, leading hand or supervisor.

Unit Sector

This unit has no prerequisites

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|-------------------------------------|--|
| 1. Design and make models. | 1.1 Establish model design from drawings, originals or consultation with the customer
1.2 Select and prepare appropriate materials for model construction
1.3 Make models ensuring the final product is to specification, and shrinkage is allowed for. |
| 2. Set up and produce block moulds. | 2.1 Set up materials for mould making, ensuring:
2.2 the appropriate model is selected as required by the specification
2.3 mixing of materials is to specification to ensure correct consistency
2.4 Establish mould design to ensure:
2.5 appropriate parting lines are chosen
2.6 the mould is divided into sufficient sections to enable proper demoulding
2.7 the mould allows for good OHS practice when being used
2.8 Make mould to specifications checking that:
2.9 plaster is poured ensuring the mould is properly filled
2.10 plaster is allowed to stand for the specified time to ensure the mould is properly set and can be removed from the model
2.11 the mould is finished to specifications
2.12 moulds are properly registered. |

3. Prepare cases and frames.
 - 3.1 Consult manufacturing schedule to determine type of mould to be made
 - 3.2 Set up materials for case making, ensuring:
 - 3.3 appropriate frame or frames are selected to specification
 - 3.4 materials are mixed to specification to ensure mixture is of the consistency required
 - 3.5 Make case to specification checking that:
 - 3.6 plaster/rubber/plastic is poured ensuring the block mould is properly filled
 - 3.7 material is allowed to stand for the specified time to ensure the block mould is properly set and can be removed from the case and frame
 - 3.8 cases are appropriately registered in and dated
 - 3.9 block mould is released from case and frame and prepared for use.

4. Prepare and make working moulds.
 - 4.1 Select the appropriate case/frame
 - 4.2 Make the working mould to specification checking that:
 - 4.3 plaster is poured ensuring the mould is properly filled
 - 4.4 plaster is allowed to stand for the specified time to ensure the mould is properly set and can be removed from the model
 - 4.5 the mould is finished to specification
 - 4.6 moulds are properly registered
 - 4.7 Release working moulds from the case:
 - 4.8 marked with appropriate identification
 - 4.9 cleaned and edges prepared
 - 4.10 stacked and dried to specification
 - 4.11 stored in the approved manner and location.

5. Prepare dies.
 - 5.1 Consult manufacturing schedule to determine type of die to be made
 - 5.2 Set up materials for die making, ensuring:
 - 5.3 appropriate master die is selected to specification
 - 5.4 materials are mixed to specification to ensure proper die life and form
 - 5.5 Make dies to enterprise specifications checking that:
 - 5.6 specified release agents are used to facilitate working die removal
 - 5.7 material is poured to ensuring the master die is filled
 - 5.8 material is allowed to stand for the specified time to ensure the die is cured and removed from the master die
 - 5.9 Release working die from master die and prepare for use, ensuring dies are:
 - 5.10 marked with appropriate identification
 - 5.11 cleaned and edges prepared
 - 5.12 stored and cured to specification
 - 5.13 stored in the approved manner and location.

- 6. Respond to problems.
 - 6.1 Identify possible routine and non-routine problems in the equipment or process
 - 6.2 Determine problems needing action
 - 6.3 Determine possible fault causes
 - 6.4 Rectify problem using appropriate solution within area of responsibility
 - 6.5 Report problems outside area of responsibility to designated person.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

- concrete products
- clay products
- ceramic products.

- additives
- body materials
- epoxy resins
- metal strapping
- plaster
- plastic
- release agents
- rubber
- slip
- timber
- water.

- block moulds and working moulds
- cases and frames
- hand and power tools
- jigs and fixtures
- master dies
- mixing equipment
- models
- weighing equipment.

This unit was developed for larger production contexts but it may also be relevant to craft practitioners producing ceramic work.

All operations are performed to procedures.

The identification and control of hazards and the application of OHS are to be in accordance with current, applicable legislation and regulations, and company procedures. All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, those parts of element 6 referring to dealing with problems). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

Competence must be demonstrated in the ability to recognise situations requiring action and then in implementing appropriate corrective action. Consistent performance should be demonstrated. In particular look to see that:

- OHS requirements are met
- quality improvement techniques are applied
- emergency procedures are understood and applied
- waste is minimised.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Essential knowledge

Knowledge and understanding of the process sufficient to recognise situations which could cause production problems and take appropriate action.

Knowledge of the enterprise's procedures and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of moulds and dies.

Competence includes the ability to:

- use and maintain all required materials, tools and parts
- diagnose and solve problems involved in the work
- predict hazards that may arise from mould or die design or preparation
- achieve specified quality standards
- communicate effectively with team members, management and other departments
- apply and/or explain:
 - characteristics of different materials
 - requirements from drawings, specifications or job sheets
 - distinguish between causes of faults such as:
 - materials
 - dimensions
 - allowance for shrinkage
 - damage to components

as is relevant to the practical operation of the process.

PMCOPS490A

Unit Descriptor

Undertake simple refractory design

This unit is about applying design principles and being capable of undertaking simple design tasks. This is different to many designs in that the technical requirements of the design are paramount and the application of an understanding of refractories, heat transfer and refractory wear and failure mechanisms are primary.

This unit has no prerequisites.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Establish the suitability of resources. | 1.1 Check all information conforms with resources
1.2 Record discrepancies in information
1.3 Report any inaccuracies in information to the person in charge
1.4 Identify and select materials, components, tools and equipment. |
| 2. Undertake mechanical design. | 2.1 Determine strength requirements
2.2 Determine operating temperature range
2.3 Select materials/mix with appropriate mechanical strength
2.4 Identify hazards of materials and processes to be used and apply hierarchy of control to control hazards
2.5 Determine expansion which will occur for this material
2.6 Adjust material/mix to be suitable for temperatures. |
| 3. Undertake thermal design. | 3.1 Determine heat flow through the refractory
3.2 Determine interface temperatures for multi-component linings
3.3 Use simple software
3.4 Determine interface bonding/anchor issues. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This unit covers a refractory design for a situation which can be achieved by the application of standard products/components in a standard manner. It does not cover innovative products/applications nor those situations where the design must be done by a registered engineer, although it may involve working with an engineer on a design.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on appropriate exercises. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations, materials and applications.

Simulation or case study/scenarios may be required to allow for timely assessment of parts of this competency unit. Simulation should be based on situations as close to real as possible, and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Resource implications

Assessment will require access to simple heat flow software for some period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

It may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

It may be appropriate to assess this unit concurrently with:

- PMAOHS100B Follow OHS procedures.

Essential knowledge

- basis of heat flow calculations
- familiar with simple software for calculations
- aware of other relationships involved with these calculations.

PMCOPS491A

Analyse refractory failures

Unit Descriptor

Refractories may fail due to a number of reasons, and these may be mechanical (wear, impact) or thermal (thermal stresses, flame impingement) or due to other reasons. The analysis of failures is important so that replacement refractories can be better designed to reduce this failure and extent the time between failure/replacement.

In particular this unit is about:

- understanding failure modes
- being capable of differentiating different modes
- being familiar with forensic procedures.

Unit Sector

This unit has no prerequisites.

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Establish the suitability of resources. | 1.1 Check all information conforms with resources
1.2 Record discrepancies in information
1.3 Report any inaccuracies in information to the person in charge
1.4 Identify and select materials, components, tools and equipment. |
| 2. Analyse failure modes. | 2.1 Identify spalling modes
2.2 Identify corrosion mode
2.3 Identify abrasion modes
2.4 Identify impact/compression/tensile modes. |
| 3. Undertake forensic procedures. | 3.1 Plan required investigation
3.2 Specify required testwork/analyses
3.3 Formulate simple reports. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This unit covers all common types of refractory failures. The failure needs to be recognised and distinguished from other possible causes. Possible causes for the failure also need to be identified, particularly if failure is unexpected/refractory life is shorter than expected.

Investigation involved the collection of evidence, and may require the specifying of appropriate tests and the analysis of plant records and logs.

The report should summarise the nature of the failure, the cause(s), the methods used to determine this cause and the conclusions drawn and recommendations made.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on appropriate exercises. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations, materials and applications.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this competency unit. Simulation should be based on situations as close to real as possible, and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Resource implications

Assessment will require access to several examples of refractory failures for some period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

It may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

It may be appropriate to assess this unit concurrently with:

- PMAOHS100B Follow OHS procedures.

Where the analysis of refractory failure is to occur on site, or in a vessel then competency in the appropriate OHS and/or permit units is also required.

Essential knowledge

- basis of various failure modes
- organisation of simple testwork programs
- make appropriate judgements on results
- express these results in report format.

PMCOPS530B

Unit Descriptor

Analyse equipment performance

This competency covers the analysis of the performance, and performance verification, of existing equipment. It is based on PMBTECH501A Analyse equipment performance. It applies typically to the extrusion, automated casting or moulding sectors of the industry.

This competency is typically performed by a senior technician who will take the lead in the data gathering phase and then analyse the data.

This competency in practice

This competency applies to technicians who will set up and operate performance verification trials and then analyse the results to determine actual compared to theoretical performance of equipment and equipment components. It includes:

- calculating the theoretical performance of a screw, caster, etc
- gathering data to determine the actual performance of the screw, caster, etc
- calculation of actual versus theoretical performance
- making recommendations as to the appropriate action to be taken based on the - performance verification results.

This unit of competency assumes the knowledge component included in the following units of competency. Evidence must be available that the specified knowledge has been acquired and is able to be applied:

at least one appropriate OPS300 series unit.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---------------------------------------|---|
| 1. Determine theoretical performance. | 1.1 Identify item of plant and plant component(s) to be analysed
1.2 Locate and interpret design specification
1.3 Identify process materials being processed/to be processed during verification trial
1.4 Determine process material properties under process conditions
1.5 Calculate theoretical performance of component(s) with that material under those conditions. |
|---------------------------------------|---|

- 2. Conduct trial.
 - 2.1 Design verification trial to be compatible with theoretical analysis
 - 2.2 Check trial design to ensure OHS issues are identified and addressed
 - 2.3 Determine measurements needed from trial to yield required data
 - 2.4 Select equipment suitable to give required measurements
 - 2.5 Consult with relevant stakeholders
 - 2.6 Arrange for verification trial with relevant process personnel
 - 2.7 Set up required measurement equipment
 - 2.8 Supervise trial and ensure trial conditions are appropriate
 - 2.9 Collect trial data for analysis.

- 3. Verify performance of component(s).
 - 3.1 Compare theoretical with actual performance
 - 3.2 Determine significance of variation between theoretical and actual performance
 - 3.3 Investigate any suspicious results and take appropriate action.

- 4. Recommend required action.
 - 4.1 Determine appropriate action to bring performance to desired level
 - 4.2 Check that recommended action addresses any OHS issues
 - 4.3 Consult with relevant stakeholders
 - 4.4 Initiate the corrective action in accordance with company procedures
 - 4.5 Determine measures to increase equipment productivity
 - 4.6 Recheck performance after corrective action is implemented.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	3
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	3
Using mathematical ideas and techniques	3
Solving problems	3
Using technology	3

RANGE STATEMENT

This competency unit includes the analysis of equipment components such as screws and casters or items of equipment or processes.

This competency applies to all work environments and sectors within the industry, but does require both a theoretical/mathematical and a practical analysis of the process at a level equivalent to an analysis of screw performance in an extruder.

The competency does not require a knowledge of industry sectors and materials other than that in which the technician works. It assumes an understanding of the operation of all relevant equipment and processes but does not necessarily require them to be used personally.

- worn components
- validation of new components to design specification
- component performance analysis in order to upgrade process performance.

All operations are performed in accordance with standard procedures and work instructions.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the materials, equipment and process sufficient to predict their interactions and their impacts on performance.

Knowledge of the enterprise's procedures and policies along with the ability to implement them within appropriate time constraints and in a manner relevant to the job.

Competence includes the ability for the practical completion of the job to:

- calculate equipment and component performance from the design specification
- identify hazards associated with the trial and implement controls by applying the hierarchy of control
- determine equipment and design performance from practical trials
- determine the 'limiting component' in the performance of an item of equipment or a process
- determine possible performance of an item of equipment/process if practical improvements were made to the 'limiting item'.

Critical aspects

The critical aspect for this unit of competency is the ability to apply a thorough understanding of process materials, their additives and the rheological, heat and other effects of processing to the design of equipment and components to predict practical performance results. This understanding of material and process interactions should also be able to be applied to interpreting data and making judgements about the state of the equipment/component.

Language, literacy and numeracy requirements

This unit requires high levels of numeracy and literacy with the ability to interpret technical specifications and reports. Advanced numeracy allowing the calculation and interpretation of statistics, product formulae and process conditions is also required.

Assessment method and context

Competence in this unit may be assessed:

- on an operating plant over a timeframe which allows for operation under all normal and a range of abnormal conditions
- by use of a suitable simulation and/or a range of case studies/scenarios
- by a combination of these techniques.

In all cases it is expected that practical assessment will be combined with targeted questioning to assess the underpinning knowledge, and theoretical assessment will be combined with appropriate practical/simulation or similar assessment.

Resource implications

Resources required include suitable access to an operating plant or equipment that allows for appropriate and realistic simulation. A bank of case studies/scenarios and questions will also be required to the extent that they form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunchroom. No other special resources are required.

PMCOPS531A
Unit Descriptor

Choose materials for an application

This competency covers the application of the knowledge of materials characteristics to their properties so enabling the choice of an appropriate material mix for an application. It is based on PMBTECH505A Choose polymer materials for an application.

This competency is typically performed by technicians developing new products or applying this knowledge set to advanced process/product problem solving.

This competency in practice

This competency applies to technicians who are able to bring together an understanding of the basics of chemistry and physics and apply this understanding to determine the properties of process materials and products. It includes:

- the influence of different material properties on processing and product properties
- the influence of processing methods on product properties
- methods of modifying the properties of materials and products
- the selection and interpretation of material and product tests
- the ability to bring these skills together to select appropriate material(s) for an application.

This competency has no prerequisites.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Determine possible product properties. | 1.1 Estimate product properties from different materials and processing conditions
1.2 Predict the impact of different grades of materials/additives on product properties
1.3 Predict the impact of different processing conditions on product properties. |
| 2. Choose materials/material mix for an application. | 2.1 Select appropriate base materials for an application based on the material properties
2.2 Determine reinforcement(s)/additives required to meet product specification
2.3 Predict failure mechanism for selected mix and modify selection if appropriate
2.4 Identify any health, safety or environmental issues with materials and modify selection if appropriate
2.5 Develop formulation and select appropriate production method. |
| 3. Organise testing of product and interpret test results. | 3.1 Select appropriate test(s) for product based on test purpose and limitations, and material being tested
3.2 Test colour using colour coordinates as required
3.3 Interpret test results and modify formulation/production method as required to meet product specification. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	2
Using mathematical ideas and techniques	3
Solving problems	3
Using technology	3

RANGE STATEMENT

This competency applies to all work environments and sectors within the industry.

Standard procedures means all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards.

- particle size, size distribution, particle shape and porosity
- flow properties, melt viscosity
- rigidity, tensile yield strength, modulus, impact strength
- brittle and ductile failure
- dimensional and thermal stability.

- silicas and clays
- glass
- fibres
- steel.

- environmental tests - UV, environmental stress cracking, weatherometer, chemical resistance
- mechanical tests - tensile, creep, coefficient of friction, wear resistance/abrasion, density
- chemical/analytical tests
- colour tests - colour coordinates (LAB), colour difference (D E).

All operations are performed in accordance with standard procedures and policies.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the process and material characteristics sufficient to enable the selection of materials with appropriate base properties.

Knowledge of the enterprise's standard procedures and policies. Knowledge of the relevant regulatory requirements and national/international standards along with the ability to implement them within appropriate time constraints and in a manner relevant to the job.

This unit assumes a knowledge of basic chemistry and physics as relevant to the products and process.

Competence includes the ability for the practical completion of the job to:

- apply and explain:
- property changes caused by different processing methods and conditions
- typical processing conditions for typical products
- property changes caused by using additives
- mechanism of reinforcement where appropriate
- test methods
- properties and applications of materials.

Critical aspects

It is essential that the material and additive properties be understood and the chemistry behind these properties can be explained. Competence must be demonstrated in the ability to predict appropriate materials and additives from the required properties of a product.

Consistent performance should be demonstrated. In particular look to see that selections made can be justified.

Language, literacy and numeracy requirements

This unit requires high level literacy and numeracy.

Assessment method and context

Competence in this unit may be assessed:

- by observation of an actual design project where the assessee takes a lead technical role in the material selection
- by use of a suitable project where arrangements are made to include the testing aspects.

In all cases it is expected that practical assessment will be combined with targeted questioning to assess the underpinning knowledge and theoretical assessment will be combined with appropriate practical/simulation or similar assessment.

Resource implications

Resources required include suitable access to an operating plant or equipment that allows for appropriate and realistic simulation. A bank of case studies/scenarios and questions will also be required to the extent that they form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunchroom. No other special resources are required.

PMCOPS630B**Unit Descriptor****Develop a new product**

This competency covers the development of a new product for a company and the facilitation of its initial production. It is based on PMBTECH601A Develop a new product.

This competency is typically performed by high level staff, working as part of a product design, development and implementation team and taking a lead technical role.

This unit does not cover work requiring special certification (eg, registered structural engineer) but may include working with such people and providing process and product expertise.

This competency in practice

This competency applies to people who develop new products to meet a specified end use. This will involve working closely with a range of management and operations personnel and requires balancing the business and technical sides of the new product. This unit of competency applies to the technical expert. Critical aspects for success include:

- ensuring the technical performance meets the customer's needs
- making sure the market needs of cost, timeliness and quality are appropriately balanced
- designing a product and process which can be efficiently made by the company
- liaising with the required people to ensure tooling design and manufacture and equipment modification are correct
- optimising the process for the new product at the completion of the development phase.

This unit of competency assumes the knowledge component included in the following units of competency. Evidence must be available that the specified knowledge has been acquired and is able to be applied:

PMBTECH502B Review and analyse production trials and specify retrials

PMCOPS531A Choose materials for an application

MEM15.1AA Perform basic statistical quality control.

Unit Sector

No sector assigned

ELEMENT	PERFORMANCE CRITERIA
1. Confirm design brief of new product.	1.1 Communicate with customer and other key stakeholders and agree: <ul style="list-style-type: none"> 1.1.1 technical specification 1.1.2 health, safety and environmental requirements 1.1.3 aesthetic requirements 1.1.4 timelines 1.1.5 cost and other market requirements 1.2 Determine regulatory/industry code/intellectual property requirements for product 1.3 Identify possible tooling/process/equipment needs 1.4 Develop design brief, including relevant drawings, to meet needs 1.5 Obtain 'sign off' on total design brief from all relevant persons.
2. Determine material requirements for product.	2.1 Select appropriate base materials or range of materials for evaluation 2.2 Select type(s) of reinforcement and other additives needed 2.3 Determine material testing and evaluation regime required to meet product end use requirements, including regulatory/industry code requirements 2.4 Arrange for compounding, testing and evaluation of trial materials 2.5 Interpret material trial results and guide material trial process 2.6 Determine final materials specification(s).
3. Determine process requirements for product.	3.1 Select appropriate process to make product based on factors including: <ul style="list-style-type: none"> 3.1.1 type of material 3.1.2 dimensional precision of product 3.1.3 length of run/number of products 3.1.4 required aesthetics 3.1.5 size and complexity of product 3.1.6 available capital funding 3.1.7 process equipment available 3.2 Determine any special process/equipment requirements for this product 3.3 Ensure an appropriate hazard analysis is conducted on the process, equipment and materials/products 3.4 Communicate with production personnel to determine their concerns and/or special needs.
4. Ensure process needs for new product have been met.	4.1 Ensure that risks identified in the hazard analysis are addressed appropriately 4.2 Liaise with tool/die/mould/equipment design/procurement personnel 4.3 Interpret hardware specifications and ensure they are appropriate for the job required 4.4 Liaise with process personnel to ensure appropriate draft procedures for new product have been developed.

- 5. Trial new product through the process.
 - 5.1 Design trialing procedure to deliver required information
 - 5.2 Ensure OHS and environmental requirements are stringently observed
 - 5.3 Coordinate the trialing of the new product
 - 5.4 Interpret product trial results and guide product trial process
 - 5.5 Tune process to optimise production of new product.

- 6. Determine process capability.
 - 6.1 Plot appropriate statistical process control charts
 - 6.2 Determine 3 s (or 6 s) confidence limits
 - 6.3 Compare confidence limits with product specification.

- 7. Coordinate product trials.
 - 7.1 Determine product testing and evaluation regime required to meet end use requirements, including regulatory/industry code requirements
 - 7.2 Arrange for testing and evaluation of trial product/prototype
 - 7.3 Interpret product trial results and guide product trial process
 - 7.4 Determine final product specification
 - 7.5 Make required changes to materials, process and equipment.

- 8. Implement standard procedures for new product.
 - 8.1 Monitor initial production and adjust process, conditions and materials to make the process a smooth operation
 - 8.2 Ensure process specifications reflect the optimised operation developed
 - 8.3 Ensure standard operating procedures are correct for the new product
 - 8.4 Ensure equipment and other hardware records are updated to reflect additions/changes
 - 8.5 Ensure project records are complete and all required reports have been completed and submitted
 - 8.6 Archive records according to company procedure.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	3
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	3
Using mathematical ideas and techniques	3
Solving problems	3
Using technology	3

RANGE STATEMENT

This competency unit is for the design of a new product from scratch'. It assumes an understanding of the operation of all relevant equipment and processes but does not necessarily require them to be used personally.

This competency applies to all work environments and sectors within the industry. The competency assumes a working knowledge of all main processes and materials so that an informed choice can be made between them.

This unit requires an understanding of all standard processes, major material types and common additives.

- for design of dies/moulds such as are used in extrusion, casting and moulding
- understanding of use of all standard processing equipment
- relevant personal protective equipment.

- OHS
- food grade requirements
- environmental regulations
- industry codes
- structural codes.

- defining product end use requirements in terms meaningful to the product design and manufacture
- matching suitable materials and processes to the product needs and company expertise and facilities
- matching (and improving) process capability to product tolerances.

All operations are performed in accordance with standard procedures and policies.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements:

Knowledge and understanding of the materials, equipment and process sufficient to choose an appropriate combination of materials and process to achieve the end use function of the product

Knowledge of the enterprise's procedures and relevant regulatory requirements, including OHS legislative requirements for designers, along with the ability to implement them within appropriate time constraints and work standards.

Competence includes the ability for the practical completion of the job to:

- select and justify the selection of:
- material type and grade for a range of applications
- additives (including reinforcing) and grade for a range of applications
- appropriate process for a range of product/market applications
- material and product testing procedures
- apply theoretical principles to predict:
- appropriate material type and grade for typical applications
- appropriate additives and grades for a range of applications
- effects of processes and processing on the final properties of the product
- miscibility and solubility effects and phase separation/single phase processing
- mathematically determine:
- volume fractions in a formula
- product cost estimates
- interpret and make recommendations based on:
- laboratory test results
- field test results
- market analysis data
- trialing data
- apply hazard analysis principles appropriate to the process and interpret and use the outcomes from a hazard analysis
- identify typical hazards with the type of process.

Critical aspects

The critical aspect for this unit of competency is the ability to apply a thorough understanding of materials, their additives and the rheological, heat and other effects of processing to a new situation and use this understanding to predict likely solutions to the new product design specification challenge. This understanding of material and process interactions should also be able to be applied in interpreting data and making adjustments to materials and process to achieve the desired outcomes while addressing the safety implications.

Language, literacy and numeracy requirements

This unit requires high levels of numeracy and literacy with the ability to write and interpret technical specifications and reports. Advanced numeracy allowing the calculation and interpretation of statistics, product formulae and process conditions is also required.

Assessment method and context

Competence in this unit may be assessed:

- by observation of an actual product development project where the assessee takes a lead technical role
- by use of a suitable product development project where arrangements are made to also assess the implementation aspects.

The development must be of a product which is new to the organisation and not just a modification of an existing product. It is possible that a major redesign of an existing product may encompass all the aspects of a new product design to an appropriate breadth and depth. Where the only available product design projects are the major redesign of an existing project, normally several such projects will be required to match the breadth and depth of skills which can be demonstrated by the development of a totally new product.

In all cases it is expected that practical assessment will be combined with targeted questioning to assess the underpinning knowledge, and theoretical assessment will be combined with appropriate practical/simulation or similar assessment.

Resource implications

Resources required include suitable access to an operating plant or equipment that allows for appropriate and realistic simulation. A bank of questions will also be required to the extent that they form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunchroom. No other special resources are required.

PMCOPS631B Unit Descriptor

Design structural/mechanical components

This competency covers the mechanical/structural design of components which are to be made from manufactured mineral products. It applies the traditional engineering structures to brittle materials. It is based on PMBTECH603A Design structural/mechanical polymer components.

This competency is typically performed by senior technicians/technologists who are designing, or part of a team, designing structures or structural or mechanical components.

This unit does not cover work requiring special certification (eg, registered structural engineer) but may include working with such people and providing process and product expertise.

This competency in practice

This competency applies to technologists designing new mechanical or structural components. The key factors in the design of the component are adequate strength and toughness and making allowances for, and taking maximum advantage of, the inherent properties of manufactured mineral product materials. It includes:

- structural components such as support columns and beams
- rigid beams and frames
- mechanical components subject to forces/transmitting mechanical power
- working with a certified structural engineer (when appropriate) to provide specialised - material and process knowledge.

This unit of competency requires a detailed understanding of mechanics such as might be gained from some engineering studies. Where this knowledge is to be gained as part of this unit of competency, it will require a significantly greater effort and time than would otherwise be required.

This unit of competency assumes the knowledge component included in the following units of competency. Evidence must be available that the specified knowledge has been acquired and is able to be applied:

PMCOPS531A Choose materials for an application.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| <p>1. Determine mechanical/structural design requirements.</p> | <p>1.1 Determine stress/strain requirements of end use</p> <p>1.2 Determine flexural/rigidity requirements of end use</p> <p>1.3 Determine required physical properties (such as size, shape and density) of end use</p> <p>1.4 Determine environmental requirements (physical, chemical, radiation) of end product</p> <p>1.5 Identify how component fits with entire end product</p> <p>1.6 Develop mechanical design brief and verify with appropriate people.</p> |
|--|---|

- | | |
|---|--|
| 2. Select material(s) and additives, including reinforcing, appropriate for the design brief. | <ul style="list-style-type: none"> 2.1 Select material/combination of materials with appropriate physical properties 2.2 Select material/combination of materials with appropriate chemical properties 2.3 Select material/combination of materials with appropriate radiation resistance/transmission properties 2.4 Arrange for compounding and testing of possible material(s) as appropriate 2.5 Determine relevant properties of selected material/shortlisted materials. |
| 3. Undertake mechanical design of component. | <ul style="list-style-type: none"> 3.1 Calculate size and shape/profile of component to meet design brief 3.2 Liaise with product developer to also deliver required aesthetic aspects 3.3 Liaise with product developer/production to ensure efficiency in manufacture 3.4 Suggest modifications to material(s)/compound as required. |
| 4. Design jointing/joining/ other product interfaces. | <ul style="list-style-type: none"> 4.1 Liaise with designers of other components 4.2 Agree on interface requirements/joints/joining as appropriate 4.3 Design suitable interfaces 4.4 Check interface design to ensure it meets the end use requirements without sacrificing integrity. |
| 5. Finalise design. | <ul style="list-style-type: none"> 5.1 Check internal consistency of design 5.2 Check overall design meets end use requirements 5.3 Ensure issues identified in the hazard analysis for both end use safety requirements and manufacturing requirements are addressed in the final design 5.4 Write component specification 5.5 Liaise with product developer/production to write production specification/procedures 5.6 Supervise manufacture and testing of prototypes/manufacturing trials as appropriate 5.7 Finalise specifications and manufacturing processes, and complete all reports 5.8 Ensure project records are complete and all required reports have been completed and submitted 5.9 Archive records according to company procedures. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	3
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	3
Using mathematical ideas and techniques	3
Solving problems	3
Using technology	3

RANGE STATEMENT

This competency unit is for the design of a new product or a component of a new product which has a significant structural or mechanical requirement. It assumes an understanding of the operation of all relevant equipment and processes but does not necessarily require them to be used personally.

This competency applies to all work environments and sectors within the industry. The competency assumes a working knowledge of all main processes and materials so that an informed choice can be made between them.

Standard procedures means all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards.

- critical load bearing structural components requiring significant design such as columns and beams
- critical mechanical components transmitting power/forces such as shafts, gears and bearings
- component joints/joins
- components with a critical rigidity/flexural specification
- individual components
- integrated structural components
- large and small components.

This unit does NOT provide a qualification as a certified structural engineer such as might be required by government regulation for some structures. However, persons with this qualification should be able to work closely with such people, if required, providing specialised material and process knowledge.

It includes all materials and their additives.

All operations are performed in accordance with standard procedures and policies and the relevant industry/government and codes and standards.

EVIDENCE GUIDE**Essential knowledge and enterprise requirements**

Knowledge and understanding of the materials, equipment and process sufficient to design a component which is mechanically/structurally fit for its end purpose and which can be efficiently manufactured.

Knowledge of the enterprise's policies and procedures and relevant regulatory requirements, including the OHS legislative obligations of designers along with the ability to implement them within appropriate time constraints, and in a manner relevant to the job.

Competence includes the ability for the practical completion of the job to:

- apply and explain:
 - stress/strain data of materials to the design situation
 - material flow properties
 - impact and notch strength
 - tensile, compressive, shear and torsional strength
 - adequate safety factors
 - overall design features which take advantage of the material(s) being used
- make compounding recommendations to modify properties such as:
 - stress/strain data of materials
 - flow, rheometric properties
 - material strength
 - environmental resistance (eg, temperature, chemicals, UV and other radiation)
- make changes to physical size and shape to change:
 - stiffness/rigidity, deflection
 - strength.

Critical aspects

The critical aspect for this unit of competency is the ability to apply a thorough understanding of materials, their additives and the rheological, heat and other effects of processing to the design of a new mechanical or structural component. The ability to modify both compound design and mechanical design to optimise the results should be evident. The designed product must not only be fit for its purpose but also capable of safe and efficient manufacture for an appropriate price/cost.

Language, literacy and numeracy requirements

This unit requires high levels of numeracy and literacy with the ability to write and interpret technical specifications and reports. Advanced numeracy allowing the calculation and interpretation of statistics, design formulae and process conditions is also required.

Assessment method and context

Competence in this unit may be assessed:

- by observation of an actual design project where the assessee takes a lead technical role
- by use of a suitable design project where arrangements are made to also assess the implementation aspects.

In all cases it is expected that practical assessment will be combined with targeted questioning to assess the underpinning knowledge and theoretical assessment will be combined with appropriate practical/simulation or similar assessment.

Resource implications

Resources required include suitable access to an operating plant or equipment that allows for appropriate and realistic simulation. A bank of questions will also be required to the extent that they form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunchroom. No other special resources are required.

PMCSUP170B

Shift materials safely

Unit Descriptor

This competency covers the safe manual handling of products and materials as part of the various manufacturing processes.

This competency is typically performed by operators and store personnel working either independently or as part of a work team.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Plan operations. | 1.1 Correctly identify type and quantity of product or material to be moved
1.2 Identify most safe and efficient movement route
1.3 Select and use manual handling aid(s) as appropriate
1.4 Identify any assistance required. |
| 2. Manually transfer products or materials. | 2.1 Identify hazardous manual handling during transfer
2.2 Use personal protective equipment (PPE) to minimise risk
2.3 Use manual handling aids as required
2.4 Use movements and postures which minimise risk while completing transfer |
| 3. Store and/or stack products or materials. | 3.1 Load and/or store products or materials safely.
3.2 Manually store products or materials in correct locations
3.3 Document and/or report material movements as required. |
| 4. Resolve problems. | 4.1 Identify any problem with the safe and efficient transfer of products/materials
4.2 Take action on/report problem as appropriate. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	-
Solving problems	1
Using technology	-

RANGE STATEMENT

- hand trolleys
- wheelbarrows
- block and tackle
- self-propelled trolleys.

It does NOT include the use of licensed load shifting equipment.

This competency unit does include the manual stacking of materials, including the manual dehacking of bricks.

- load too heavy or large for safe/easy moving
- load in awkward position for safe/easy moving
- clash of work priorities
- correct equipment not available
- equipment not in good working orders (eg, wheels of trolleys sticking/not steering).

- heavy loads or high forces
- repetitive or sustained forces
- awkward postures
- repetitive movements
- unstable or unbalanced loads
- loads which are difficult to grasp or hold.

- transfer equipment not fit for use
- appropriate equipment not available
- obstacles in pathway
- loads at low/high height or awkward to access
- problems with pathway (eg, unstable under foot or inappropriate for equipment).

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the safe manual handling and lifting sufficient to recognise potential problems and to take the appropriate action.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements, along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the system.

Competence includes the ability to:

- apply and/or describe:
 - appropriate manual handling lifting/moving equipment
 - use of inventory systems
 - correct OHS procedures
 - types of injuries which can arise from manual handling
 - factors that contribute to hazardous manual handling including postures, movements, force, duration and frequency and environmental conditions
 - types of simple modifications to task that can reduce the manual handling risk (eg, ensuring where possible that loads are handled between knee and shoulder height, clearing path)
 - body postures and movements that minimise handling risk (eg, moving feet to avoid twisting, employ large muscle groups of legs to avoid bending)
- distinguish between jobs which:
 - may be easily and safely done with a single person
 - require assistance from other people
 - require manual handling equipment
 - need mechanical lifting aids

as is relevant to the practical execution of the job.

Critical aspects

It is essential that the manual handling principles be understood and that the importance of safe manual handling techniques is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- problems such as obstacles to route are identified and addressed
- correct movements and postures are used to minimise
- appropriate lifting/moving equipment is used
- good OHS practice is followed
- products are correctly identified
- locations are correctly identified.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Concurrent assessment and prerequisite competencies

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Assessment method, context and resource implications

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCSUP171B

Pack finished products

Unit Descriptor

This competency covers the packaging of products to prepare them for warehousing.

This competency is typically performed by operators or store personnel working either independently or as part of a work team.

This unit has no prerequisites.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---------------------------------------|---|
| 1. Package finished products. | 1.1 Identify the nature of the product and the particular handling requirements
1.2 Conduct process preparation according to production specifications and organisational procedures
1.3 Conduct equipment start up and run operation
1.4 Employ ancillary equipment and use safe working procedures. |
| 2. Stack and store finished products. | 2.1 Consult company warehouse schedule to determine product storage and location requirements
2.2 Mark packages to show product type, colour, quality and quantity
2.3 Set up work area, handling and storage equipment taking account of safety and efficiency
2.4 Store products making safe and efficient use of storage space. |
| 3. Clear work area. | 3.1 Store unpacked products, products for packaging and handling equipment in appropriate areas
3.2 Clean equipment and make ready for reuse
3.3 Clean work area, making it safe and ready for the next user
3.4 Report and document equipment faults. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	-
Solving problems	1
Using technology	1

RANGE STATEMENT

- mobile plant/fork lifts
- manual handling equipment
- hand tools
- computers, bar code readers
- bag filling equipment
- pallets
- wrapping machines
- personal protective equipment (PPE)
- distribution equipment including
 - A-frames
 - stillages
 - containers
 - elevated platforms and
 - communication equipment.

- movements and postures
- hazards of materials and safe storage/location
- efficiency of locations and movements.

This competency unit will vary according to the nature of the products and the specific handling requirements of each enterprise.

- equipment malfunctions
- product specifications
- handling specifications
- insufficient space
- unusual products.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the equipment and packaging processes sufficient to recognise potential problems and to take appropriate action.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements, along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the equipment and packaging process.

Competence includes the ability to:

- apply and/or describe:
 - packaging procedures
 - packaging processes
 - safe set up of individual work area
 - storage requirements for safety and efficiency
- distinguish between causes of faults such as:
 - products
 - equipment
 - packaging materials and items of equipment

as is relevant to the practical operation of the process.

Critical aspects

It is essential that the equipment and the process be understood and that the importance of critical settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- product damage due to handling errors is minimised
- mislabelling opportunities are minimised
- problems relating to work are diagnosed and solved
- waste is minimised
- effective communication between team members, supervisors and other staff is maintained.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Assessment method and context

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Other assessment advice

It may be appropriate to integrate the assessment of this unit with *PMCSUP170B Shift materials safely* where manual handling is required and also with *PMCOPS103B Operate equipment* where they are also required to operate fixed packaging plant. If operation of forklift truck etc is required see *TDTD1097B Operate a forklift*.

Resource implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCSUP172B

Unit Descriptor

Store materials for production

This competency covers the storing and monitoring of materials.

This competency is typically performed by operators working either independently or as part of a work team.

This unit has no prerequisites.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

If the ability to sample and test materials is part of the job requiring this competency, then the appropriate sampling and testing competencies must also be achieved (see PMCSUP292A Sample and test materials and product). These are at a higher level.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---------------------------------|--|
| 1. Store materials. | 1.1 Check quantity, quality and transfer of materials
1.2 Store materials safely in designated locations
1.3 Transfer materials using appropriate equipment according to enterprise requirements and using good OHS procedures
1.4 Complete all necessary documentation/records. |
| 2. Monitor material in storage. | 2.1 Check and maintain supplies of materials
2.2 Check physical and chemical state of stored materials
2.3 Check equipment used to keep stored materials in required state
2.4 Take action required by procedures/work instructions to keep required level and quality of stored materials. |
| 3. Check stored materials. | 3.1 Sample materials as required
3.2 Check quality of materials as required
3.3 Visually check that bins/hoppers/tanks are free from contamination
3.4 Take actions required by procedures/work instructions. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

The application of this competency will vary according to the batch requirements, range of equipment, technology and the varied range of process procedures within an enterprise.

- motorised rail and road vehicles
 - mechanical handling equipment including front end loaders
 - computers
 - hand tools and safety equipment
 - mechanical and computerised measuring devices
 - bunkers, silos, bins/hoppers, weigh bins, tanks and portable tanks
 - flammable stores.
-
- materials supplied from an external source
 - materials/chemical mix produced internally for secondary process.
-
- material specifications
 - contamination of stored stock
 - quality of received materials
 - equipment failure.

This competency includes the operation of all ancillary equipment and the operation of plant using PLCs where appropriate.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the materials and equipment sufficient to recognise variance from specifications and then to determine an appropriate action that is consistent with operating guidelines.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements, along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the process.

Competence includes the ability to:

- apply and/or describe:
 - principles of safe and efficient storage
 - material characteristics
 - impact of contamination
 - hazard identification
 - transfer system
 - testing procedures
- distinguish between causes of faults such as:
 - different materials
 - equipment (electrical, mechanical and manual)
 - contamination

as is relevant to the practical operation of the process.

Critical aspects

It is essential that the process be understood and that the importance of critical material properties is known.

Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- materials are safely and efficiently stored to specification
- problems (eg, supply and demand of materials, contamination) are anticipated and appropriate action is taken.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Assessment method and context

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the time-frame must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a range of case studies/scenarios.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Other assessment advice

It would be desirable to assess this unit concurrently with *PMCSUP170B Shift materials safely* unless competency has already been achieved in this unit.

Resource implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCSUP180A**Unit Descriptor****Organise self**

This competency covers the setting of individual work priorities to fit in with the overall schedule of production to meet operational requirements.

This competency is typically performed by operators who may be working individually or as part of a team.

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|------------------------------------|--|
| 1. Identify work activities. | 1.1 Identify individual work activities that have been allocated
1.2 Prioritise work activities as directed. |
| 2. Organise daily work activities. | 2.1 Break down work activities into small achievable components
2.2 Record activities as required by procedures/work instructions. |
| 3. Follow work plan. | 3.1 Locate relevant procedures/work instructions
3.2 Undertake tasks in accordance with schedule/plan and procedures/work instructions
3.3 Maintain output in accordance with schedule/plan
3.4 Follow prescribed and routine work related sequences
3.5 Identify situations which might make following the plan difficult and review plan with appropriate person(s). |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

- communication procedures used within each enterprise
 - established work practices.
-
- procedures and work instructions
 - materials safety data sheets
 - job cards
 - maintenance logs
 - plant drawings.
-
- required information/materials not available
 - required tool/equipment not available
 - conflict in job priorities.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Critical aspects

Competence must be demonstrated in the ability to identify work activities and prioritise work in order to meet timelines.

Consistent performance at the required standard should be demonstrated. In particular look to see that:

- activities are planned in accordance with instructions
- relevant procedures are accessed and utilised in completing activities
- timelines are adhered to
- assistance is sought from relevant personnel when difficulties arise.

Resource implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

Essential knowledge and enterprise requirements

Knowledge and understanding of the organisation's information systems, procedures and equipment sufficient to plan daily work activities in order to meet timelines.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements, along with the ability to implement them within appropriate time constraints and in a manner relevant to giving and following instructions.

Competence includes the ability to:

- apply and/or describe:
 - importance of workplace documentation
 - enterprise quality and safety procedures
- distinguish between:
 - urgent and non-urgent tasks

as is relevant to the practical operation of the system.

PMCSUP181A

Work in a team

Unit Descriptor

This competency covers the organisation of team activities to fit in with the scheduling of production to meet operational guidelines.

This competency is typically performed by operators who work within a team structure with limited discretionary powers.

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|------------------------------|---|
| 1. Identify work activities. | 1.1 Identify task requirements of the team
1.2 Identify individual tasks that are part of the team requirement
1.3 Prioritise team and individual activities as directed. |
| 2. Organise daily work plan. | 2.1 Break work activities down into small achievable components
2.2 Record activities as required by procedures/work instructions
2.3 Seek assistance from other team members when difficulties in achieving allocated tasks arise. |
| 3. Participate in a team. | 3.1 Use interpersonal skills that are appropriate to the effective teamwork of the shift/crew/section within the workplace
3.2 Acknowledge information and feedback provided by other team members in work group
3.3 Acknowledge team roles and support team members in achieving their role
3.4 Practise teamwork within and between groups so as to contribute to the achievement of the company's work standards. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	-
Solving problems	2
Using technology	1

RANGE STATEMENT

- communication procedures used within each enterprise
- established work practices
- structure of the teams.

- procedures and work instructions
- materials safety data sheets
- job cards
- maintenance logs
- plant drawings.

- required information/materials not available
- required tool/equipment not available
- conflict of work priorities
- interpersonal conflict within the team.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the organisation's information systems, procedures and equipment sufficient to plan daily work activities in order to meet timelines.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements, along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the system.

Competence includes the ability to:

- apply and/or describe:
 - importance of workplace documentation
 - effective communication techniques
 - where teams fit into the organisational structure
 - enterprise quality and safety procedures
- distinguish between:
 - urgent and non-urgent tasks

as is relevant to the practical operation of the system.

Critical aspects

Competence must be demonstrated in the ability to identify work activities and prioritise work in order to meet timelines, whilst interacting as a member of a group.

Consistent performance should be demonstrated. In particular look to see that:

- activities are planned in accordance with instructions
- there is a willingness to participate as part of a team
- relevant procedures are accessed and utilised in completing activities
- timelines are adhered to
- assistance is sought from relevant personnel when difficulties arise.

Assessment and method and context

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resource implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCSUP270A

Unit Descriptor

Move materials

This competency covers the movement of materials around sites using front end loaders, hoists, and so on.

This competency is typically performed by an experienced operator working either independently or as part of a work team.

It will be necessary to have the licence required by government regulation where the type of load shifting equipment is regulated.

This unit does not apply to the operation of a forklift - see TDTD1097B Operate a forklift.

This unit has the prerequisite competency of any licence required by government regulation.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|------------------------------|--|
| 1. Perform pre-start checks. | 1.1 Perform pre-start checks of all plant/equipment in strict accordance with manufacturer's and enterprise requirements
1.2 Inspect, activate and check for safe operation all plant/equipment attachments consistent with standard operating procedures. |
| 2. Plan work load. | 2.1 Inspect work areas to identify hazards and implement the appropriate prevention/control measures
2.2 Take appropriate precautions to safeguard all site/non-site personnel
2.3 Erect signs and barricades, appropriate to the task, to conform with enterprise safety requirements
2.4 Select for the specific task appropriate personal protective equipment in accordance with standard operating procedures
2.5 Inspect work area to determine appropriate path for the movement of vehicular traffic
2.6 Ensure work permits are issued and received by authorised personnel as/when required in accordance with standard operating procedures
2.7 Confirm job requirements and expectations with relevant personnel
2.8 Accurately identify materials to be moved
2.9 Identify and clarify material movements required. |

- 3. Shift loads.
 - 3.1 Accurately assess weight of load by specified methods to ensure compliance with equipment load plate specifications
 - 3.2 Use the appropriate process/equipment to shift loads
 - 3.3 Observe all regulatory (State governing body) requirements regarding shifting loads
 - 3.4 Smoothly and consistently move controls and vehicle/equipment within safe operating practices/limits
 - 3.5 Accurately communicate load movements with appropriate personnel
 - 3.6 Stack loads to enterprise specific requirements, ensuring the stability of the stack without creating a hazard to personnel and equipment
 - 3.7 Use appropriate equipment attachments to perform tasks according to standard enterprise procedures
 - 3.8 Effectively perform emergency evasive action should the need arise.

- 4. Close down plant/equipment.
 - 4.1 Close down plant/equipment in accordance with standard operating procedures
 - 4.2 Park/store and secure plant/equipment to conform with enterprise specific requirements
 - 4.3 Perform post-operational checks in strict accordance with manufacturer's requirements and standard operating procedures
 - 4.4 Clean down plant/equipment and dispose of waste following established procedures
 - 4.5 Complete all record keeping/logs/paperwork as required.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	1
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	2
Solving problems	2
Using technology	1

RANGE STATEMENT

- • scrapers, tractors
- water trucks, cleaning equipment, sweepers
- forklifts
- front end loaders
- hoists, overhead gantries, cranes
- pallet shifters
- specialised loading equipment
- type of materials moved.

This competency unit includes the automatic stacking of materials including mechanised deacking of bricks.

- equipment malfunctions
- determining safe routes
- scheduling of movements to suit production requirements
- changing priorities over the shift.

'Paperwork' includes electronic versions of instructions, records and the like.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the equipment, processes and movement requirements sufficient to recognise potential problems and to take actions appropriate for those problems.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements, along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the equipment.

Competence includes the ability to:

- apply and/or explain:
 - the determination of mass/weight of loads
 - appropriate regulatory and vehicle requirements
 - safe operating procedures
 - the blending of raw materials
 - stacking and/or storing practices
- distinguish between:
 - types of materials being moved
 - locations and destinations of materials moved
 - causes of defects and faults

as is relevant to the practical operation of the equipment.

Critical aspects

It is essential that the equipment and process material needs be understood and that the importance of critical material properties is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- all pre-start checks are completed
- appropriate paths for movement of vehicles/equipment are used
- all actions are performed safely
- the correct material is delivered to the correct place in the correct amounts and at the correct time.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Assessment method and context

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resource implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCSUP271B

Unit Descriptor

Operate bulk materials handling equipment

This competency covers the operation of the range of equipment used to store and convey bulk, particulate materials. It includes the recognition, operation and troubleshooting of these routine plant items.

This competency is typically performed by operators working either independently or as part of a work team.

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|-----------------------------------|---|
| 1. Operate conveyors. | <ul style="list-style-type: none"> 1.1 Recognise the type and number of conveyors 1.2 Identify hazards and implement hazard controls according to procedures 1.3 Start up and shut down the conveyor in a manner appropriate to the conveyor type and duty 1.4 Complete routine checks, logs and paperwork, taking action on unexpected observations, readings and trends 1.5 Convey correct material from and to the correct location as required. |
| 2. Manage bulk material storages. | <ul style="list-style-type: none"> 2.1 Recognise type of storage facility 2.2 Monitor quality, quantity and location of bulk materials stored 2.3 Transfer stock into, out of and between storage as required 2.4 Supply internal and external customers with correct quality and quantity in a timely manner 2.5 Make effective use of storage capacity available taking account of safety issues. |
| 3. Rectify problems. | <ul style="list-style-type: none"> 3.1 Identify the range of faults that can occur during the operation 3.2 Determine and rectify fault causes in accordance with established enterprise procedures 3.3 Identify and rectify equipment failure causes in accordance with established enterprise procedures 3.1 Make sure appropriate records and log books of equipment operations are maintained to meet enterprise requirements 3.2 Identify non-routine problems and report according to procedure. |

PMCSUP271B Operate bulk materials handling equipment

- 4. Carry out maintenance procedures.
 - 4.1 Recognise a maintenance need according to procedure
 - 4.2 Isolate materials handling equipment and prepare for maintenance/vessel entry as required
 - 4.3 Complete minor maintenance according to standard procedures
 - 4.4 Receive plant back from maintenance and check for safe operation
 - 4.5 Prepare plant for the introduction of materials and for operation.

- 5. Control hazards.
 - 5.1 Identify hazards in the material handling work area
 - 5.2 Assess the risks arising from those hazards
 - 5.3 Implement measures to control those risks in line with procedures
 - 5.4 Shut down in an emergency as required.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	2
Solving problems	2
Using technology	1

RANGE STATEMENT

- travelling stackers
- belt
- vibrating
- screw
- flight

- dense phase
- disperse phase
- pressure
- vacuum

- piles
- bunkers
- silos
- bins/hoppers
- weigh bins/loss in weight bins.

- cement
- sand
- aggregate
- frit
- asphalt (not strictly a particulate solid but included in this unit).

- contamination of stored stock
- rat holing and bridging in silos/bins/hoppers
- routing issues.

All operations must be performed using the appropriate personal protective equipment (PPE), including breathing protection.

All operations are performed in accordance with standard operating procedures.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the process sufficient to recognise non-standard situations and then determine appropriate action which is consistent with operating guidelines is required.

Knowledge of the relevant OHS and environmental requirements is required, along with an ability to implement them within appropriate time constraints and in a manner which is relevant to the operation of the bulk materials handling equipment.

Thorough knowledge of enterprise standard operating procedures is required.

Competence to include the ability to apply and/or explain:

- hazards associated with the process
- application of the hierarchy of control in controlling the hazards
- selection, use and maintenance of relevant PPE
- principles of operation
- physics of operation
- properties of particulates
- density and bulk density
- good operating practice
- methods of resolving problems

and also the ability to:

- distinguish between causes of problems such as:
- material
- instrument
- equipment (electrical/mechanical)
- maintenance
- isolate problem to item of equipment

as is relevant to the practical operation of equipment at that job level.

Critical aspects

Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action. The reasoning process behind the problem analysis and determining the required actions should be assessed. The emphasis should be on the ability to stay out of trouble rather than on recovery from a problem.

Consistent performance should be demonstrated. In particular look to see that:

- early warning signs of equipment in need of attention/with potential problems are recognised
- action is taken to ensure equipment is returned to full performance in a timely manner
- obvious problems in other plant areas are recognised and an appropriate contribution made to a solution
- items initiated are followed through until final resolution has occurred.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Assessment method and context

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or pilot plant and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the required language and literacy levels of the operator.

Other assessment advice

Where the completion of this unit requires working under a permit/clearance then competency must also be established in *PMAPER200C Work in accordance with an issued permit* or other appropriate unit.

Resource implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCSUP272A

Identify and act upon hazards in the workplace

Unit Descriptor

This competency covers all operations related to the handling of industrial chemicals and materials in accordance with enterprise procedures.

This competency is typically performed by an operator working independently or in a team.

This unit has the prerequisite competency:

PMAOHS100B Follow OHS policies and procedures.

It is expected that this competency might be applicable in combination with other industry, occupation or workplace-specific competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Prerequisite Unit(s)

PMAOHS100B Follow OHS procedures

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Use personal protective equipment. | 1.1 Outline the functions for each type of personal protective equipment (PPE) used on site and identify the situations in which specific types of PPE would be used
1.2 Correctly use personal protective equipment. |
| 2. Work safely with industrial chemicals/materials. | 2.1 Identify and explain all safety signs, symbols and labels used in work area
2.2 Identify emergency procedures for the handling of industrial chemicals/materials
2.3 Identify hazardous areas, chemicals and materials and outline any special handling procedures
2.4 Demonstrate correct use of equipment for handling hazardous materials/chemicals
2.5 Explain the consequences of inappropriate handling of hazardous materials
2.6 Follow requirements of material safety data sheets
2.7 Complete all appropriate paperwork. |
| 3. Implement and monitor the enterprise procedures for identifying hazards and assessing risk. | 3.1 Identify existing and potential hazards in the work area in accordance with enterprise procedures
3.2 Report existing and potential hazards in the work area in accordance with enterprise procedures. |

- 4. Implement the enterprise procedures for controlling risk and dealing with hazardous events.
 - 4.1 Implement and monitor adherence to enterprise procedures to control risk as required
 - 4.2 Implement enterprise procedures for dealing with hazardous events whenever necessary to ensure that prompt control action is taken
 - 4.3 Monitor existing risk control measures and report results regularly in accordance with enterprise procedures
 - 4.4 Identify inadequacies in existing risk control measures in accordance with the hierarchy of control, and report to designated personnel.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	1

RANGE STATEMENT

- chemicals and hazardous materials (short term and long term effects)
- gases and liquids under pressure
- moving machinery
- materials handling
- working at heights, in confined spaces, or in environments subjected to heat, noise, dusts or vapours

- accidents
- fires
- chemical spills
- bomb scares.

- hazard policies and procedures
 - standard operating procedures
 - safety procedures
 - work instructions
 - industry codes of practice and regulations
 - emergency, fire and accident procedures
 - personal protective clothing and equipment procedures.
-
- hard hats
 - goggles/glasses/face shields
 - dust masks/canister masks/SCBA/long range breathers
 - gloves/gauntlets
 - safety boots
 - antistatic equipment
 - overalls/aprons/acid jackets/pants.
-
- identifying hazardous situations
 - dealing with the situation appropriately
 - communicating in OHS matters.

In these industries, which are characterised by high potential hazard, employees need to exercise their duty of care responsibilities not only within the general OHS Acts and regulations, but also within those applying to hazardous substances, dangerous goods and major hazards.

- identifying hazards in the workplace
- identifying and assessing risk in the workplace
- reporting hazards identified to the designated person
- locating, understanding and following workplace OHS procedures

as is relevant to the practical operation of the equipment.

It is essential that the OHS system be understood and that the importance of critical procedures is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

- consultation processes, either general or specific to OHS
- specific hazard policies and procedures
- OHS information
- OHS record keeping
- maintenance of plant and equipment.

- OHS and legislative requirements relating to safe handling of chemicals/materials and dangerous goods
- HAZCHEM and labelling requirements
- use of materials safety data sheets
- effect of temperature and pressure on properties of substances
- principles of operation of the equipment
- hazard policies and procedures
- enterprise processes for risk assessment
- emergency, fire and accident procedures
- procedures for the use of personal protective clothing and equipment
- deviations from desired conditions

- 1 elimination
- 2 substitution
- 3 engineering controls
- 4 administrative controls
- 5 personal protective equipment.

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

Collect, analyse & organise information
Communicate ideas and information
Plan and organise activities
Work with others & in teams
Use mathematical ideas and techniques
Solve problems
Use technology
2
2
2
2
1
2
1

This competency covers the handling of materials by an operator as an adjunct to the job of making product. It applies to a limited range of materials. It is NOT intended to be an alternative warehousing competency.

This competency is typically performed by operators working either independently or as part of a work team.

This unit **has no** prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

1 Move materials into storage.

- 1 Check paperwork and identity of materials
- 2 Check for completeness and damage
- 3 Take action on non-conforming materials/loads
- 4 Unload materials
- 5 Move materials to correct storage location

Check paperwork and identity of materials
 Check for completeness and damage
 Take action on non-conforming materials/loads
 Unload materials
 Move materials to correct storage location
 Store materials safely.

1 Move/despatch materials from storage/production.

- 1 Interpret order/paperwork
- 2 Check and take action on special requirements as needed
- 3 Select items to be moved based on job requirements and procedures/work instructions
- 4 Move/despatch materials as needed

Interpret order/paperwork
 Check and take action on special requirements as needed
 Select items to be moved based on job requirements and procedures/work instructions
 Move/despatch materials as needed
 Load materials according to standard procedures.

1 Complete materials movement records.

- 1 Complete materials movement records (in or out)
- 2 Update stock records as required

Complete materials movement records (in or out)
 Update stock records as required
 Complete other paperwork and records as required.

This competency covers the handling of a limited range of materials and their moving into and out of a plant/storage. It is NOT intended for people who, as a major function, operate a warehouse. The appropriate Transport and Distribution competencies should be used here.

This competency may require the operation of forklift trucks or other regulated load shifting devices which are NOT included in this competency, and so would be a corequisite competency.

The terms 'paperwork' and 'records' mean any and all relevant information and data whether it is manual, paper based, electronic or verbal, either in person or by phone/radio.

This competency does not imply that moving materials into and from storage/plant are conducted equally, or even using similar techniques. Customers may be internal or external and the loading/unloading of materials may mean getting them onto/off a truck or simply from/to the next department.

- special storage requirements including moisture and contamination control
- handling of incomplete loads (either in or out)
- handling of materials which do not meet specifications
- resolving conflicting priorities
- ensuring the correct material arrives at the correct place at the right time
- incomplete or incorrect paperwork.

All operations are performed in accordance with standard procedures.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the materials handling processes and requirements sufficient to recognise non-standard situations and then determine appropriate action which is consistent with operating guidelines is required.

Knowledge is required of the product, its properties and uses sufficient for correct receipt, storage and despatching.

Knowledge of the relevant OHS and environmental requirements is required along with an ability to implement them in a manner which is relevant to the materials handled.

Competence includes the ability to:

- apply and/or describe:
 - storage/handling principles and procedures
 - material hazard properties and their implications for safe handling and storage
 - significance of material to customers
 - transport requirements and restrictions for materials
- distinguish between causes of problems such as:
 - product requirements
 - job priority
 - material variations

as is relevant to the practical completion of the job.

Critical aspects

It is essential that the process be understood and that the importance of critical material properties is known.

Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- potential problems are recognised
- action is taken to ensure problems are dealt with in a timely manner
- problems caused by material issues are recognised and an appropriate contribution made to a solution
- items initiated are followed through until final resolution has occurred.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Assessment method and context

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resource implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCSUP273A

Receive and despatch materials

Unit Descriptor

This competency covers the handling of materials by an operator as an adjunct to the job of making product. It applies to a limited range of materials. It is NOT intended to be an alternative warehousing competency.

This competency is typically performed by operators working either independently or as part of a work team.

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Move materials into storage. | 1.1 Check paperwork and identity of materials
1.2 Check for completeness and damage
1.3 Take action on non-conforming materials/loads
1.4 Unload materials
1.5 Move materials to correct storage location
1.6 Store materials safely. |
| 2. Move/despatch materials from storage/production. | 2.1 Interpret order/paperwork
2.2 Check and take action on special requirements as needed
2.3 Select items to be moved based on job requirements and procedures/work instructions
2.4 Move/despatch materials as needed
2.5 Load materials according to standard procedures. |
| 3. Complete materials movement records. | 3.1 Complete materials movement records (in or out)
3.2 Update stock records as required
3.3 Complete other paperwork and records as required. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

This competency covers the handling of a limited range of materials and their moving into and out of a plant/storage. It is NOT intended for people who, as a major function, operate a warehouse. The appropriate Transport and Distribution competencies should be used here.

This competency may require the operation of forklift trucks or other regulated load shifting devices which are NOT included in this competency, and so would be a corequisite competency.

The terms 'paperwork' and 'records' mean any and all relevant information and data whether it is manual, paper based, electronic or verbal, either in person or by phone/radio.

This competency does not imply that moving materials into and from storage/plant are conducted equally, or even using similar techniques. Customers may be internal or external and the loading/unloading of materials may mean getting them onto/off a truck or simply from/to the next department.

- special storage requirements including moisture and contamination control
- handling of incomplete loads (either in or out)
- handling of materials which do not meet specifications
- resolving conflicting priorities
- ensuring the correct material arrives at the correct place at the right time
- incomplete or incorrect paperwork.

All operations are performed in accordance with standard procedures.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the materials handling processes and requirements sufficient to recognise non-standard situations and then determine appropriate action which is consistent with operating guidelines is required.

Knowledge is required of the product, its properties and uses sufficient for correct receipt, storage and despatching.

Knowledge of the relevant OHS and environmental requirements is required along with an ability to implement them in a manner which is relevant to the materials handled.

Competence includes the ability to:

- apply and/or describe:
 - storage/handling principles and procedures
 - material hazard properties and their implications for safe handling and storage
 - significance of material to customers
 - transport requirements and restrictions for materials
- distinguish between causes of problems such as:
 - product requirements
 - job priority
 - material variations

as is relevant to the practical completion of the job.

Critical aspects

It is essential that the process be understood and that the importance of critical material properties is known.

Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- potential problems are recognised
- action is taken to ensure problems are dealt with in a timely manner
- problems caused by material issues are recognised and an appropriate contribution made to a solution
- items initiated are followed through until final resolution has occurred.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Assessment method and context

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resource implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCSUP274B**Unit Descriptor****Undertake minor maintenance**

This competency covers the undertaking of minor maintenance activities on plant and equipment. It does not cover activities normally requiring a traditional trade training.

This competency is typically performed by operators working either independently or as part of a work team.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|---------------------------------------|--|
| 1. Identify maintenance requirements. | <ul style="list-style-type: none"> 1.1 Identify equipment variations/irregularities by observation and plant records 1.2 Assess the priority of the work required 1.3 Identify appropriate action 1.4 Identify correct tools and materials 1.5 Identify hazards and hazard controls required 1.6 Assess the impact of the maintenance activity and communicate to appropriate personnel 1.7 Determine if confined space or other work permit is required. |
| 2. Prepare for maintenance activity. | <ul style="list-style-type: none"> 2.1 Turn off and isolate equipment as required 2.2 Clear the area of obstructions and hazards 2.3 Obtain the appropriate work permits and adhere to procedures/work instructions 2.4 Communicate the impending maintenance activity to the appropriate personnel. |
| 3. Perform maintenance activity. | <ul style="list-style-type: none"> 3.1 Ensure correct tools and materials are available 3.2 Access all relevant information as appropriate 3.3 Undertake maintenance activity in accordance with SOPs, manufacturer's specifications and work permit conditions 3.4 Use tools and maintenance techniques correctly 3.5 Restore equipment to normal working condition 3.6 Make sure equipment works correctly 3.7 Leave work area in a clean and safe condition 3.8 Ensure permits are signed off as appropriate. |
| 4. Record maintenance activity. | <ul style="list-style-type: none"> 4.1 Complete maintenance activity logs/plant history records as per procedures/work instructions 4.2 Report maintenance activity to appropriate personnel 4.3 Identify and report outstanding maintenance requirements to appropriate personnel. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency does NOT include maintenance which would require trade level skills. The appropriate trade competency should be used for them. It is not intended that this competency would cover maintenance which is carried normally on in a workshop.

- connection/disconnection of hoses
- greasing, lubrication and lubricant systems
- minor adjustments to equipment
- adjusting sealing glands
- cleaning and changing filters
- clearing blockages
- general cleaning

- replacing shims
- replacing /maintaining seals
- gaskets/gland packing
- bushing tips.

- plant data
- log sheets
- operational and performance reports
- condition monitoring information
- hazard/incident reports
- physical aspects such as noise, smell, feel and temperature
- performance trends
- planned maintenance schedules
- standard operating procedures (SOPs)
- manufacturer's instructions and service manuals
- plant description manuals.

- hand tools
- measuring and aligning equipment.

All operations are performed in accordance with standard operating procedures and codes of practice/codes of conduct for the enterprise.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the equipment operation and maintenance practices, sufficient to recognise non-standard situations and then determine appropriate action which is consistent with operating guidelines is required.

Knowledge of the relevant OHS and environmental requirements is required, along with an ability to implement them in a manner which is relevant to the maintenance practices.

Thorough knowledge of enterprise standard operating procedures is required.

Competence to include the ability to apply and/or explain:

- hazards associated with the process
- application of the hierarchy of control in controlling the hazards
- selection, use and maintenance of relevant PPE
- principles of operation of the equipment to be maintained
- function and troubleshooting of major internal components and their problems
- typical causes of equipment failures and the service conditions which may increase maintenance
- types and nature of maintenance (preventative, predictive, corrective) uses, benefits and limitations
- urgency and timeliness factors in maintenance
- maintenance planning/scheduling/records systems
- identification of tools, materials and spare parts
- basic techniques for using and handling tools
- physical measurement, alignment and clearance principles

as is relevant to the practical operation of equipment at that job level.

Critical aspects

Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action. The reasoning process behind the problem analysis and determining the required actions should be assessed. The emphasis should be on the ability to stay out of trouble rather than on recovery from a problem.

Consistent performance should be demonstrated. In particular look to see that:

- early warning signs of equipment in need of attention/with potential problems are recognised
- action is taken to ensure equipment is returned to full performance in a timely manner
- obvious problems in other plant areas are recognised and an appropriate contribution made to a solution
- items initiated are followed through until final resolution has occurred.

Concurrent assessment and prerequisite competencies

This unit has no prerequisite competencies

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Where the completion of this unit requires working under a permit/clearance then competency must also be established *in PMAPER200C Work in accordance with an issued permit* or other appropriate unit.

Assessment method, context and resource implications

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or pilot plant and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the required language and literacy levels of the operator.

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCSUP275A

Unit Descriptor

Maintain kiln refractory

This competency covers the removal and replacement of a kiln refractory. It also covers the preparation of materials and the removal of waste from repairs.

This competency is typically performed by more experienced operators working either independently or as part of a work team.

This unit has no prerequisites.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Prepare for refractory replacement. | 1.1 Prepare and assemble, in accordance with specified requirements, materials used for the replacement of refractory
1.2 Prepare and assemble appropriate plant and equipment in accordance with specific needs and manufacturer's operating instructions
1.3 Notify appropriate personnel and ensure that required permits have been obtained. |
| 2. Replace refractory. | 2.1 Ensure that the removal of refractory and brickwork is performed in accordance with standard procedures/work instructions
2.2 Ensure that brickwork/refractory is replaced following standard procedures and work instructions
2.3 Ensure that waste from repairs to kiln is removed and disposed of correctly
2.4 Complete all records and permit procedures. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	1

RANGE STATEMENT

- protective clothing, hearing protection, safety glasses, adequate ventilation
 - hand and power tools
 - mobile plant
 - refractory support mechanisms.
-
- length and type of kiln
 - the type of process, ie, dry, wet, semi-wet, semi-dry
 - type of kiln maintenance being performed
 - method of waste disposal.
-
- furnace/ kiln problems
 - major refractory problems.

All work is performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the process sufficient to recognise variance from specification and then analyse the problem to determine the level of appropriate action required, which is consistent with operating guidelines.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements, along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the process.

Competence includes the ability to:

- apply and/or explain:
 - safe work practices
 - function of tools/equipment used
 - procedures used to prepare the kiln
 - procedures used to install refractory
 - first-line maintenance procedures required
- distinguish between causes of faults such as:
 - refractory materials
 - refractory problems

as is relevant to the practical operation of the process.

Critical aspects

It is essential that the process be understood and that the importance of critical material properties is known.

Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- replacement follows standard procedures
- correct materials are used
- permit and other health and safety procedures are followed.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Assessment method and context

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resource implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCSUP280A

Unit Descriptor

Manage conflict at work

In a typical scenario, an individual participates in the management of conflict in a range of situations where personal responsibility is required. This competency is typically performed working either independently or as part of a work team, and concerns individuals coming into contact with other people either directly or indirectly.

Typically the competency is applicable in the case of:

- interaction between co-workers
- interaction between staff and customer/client
- interaction between staff and supervisor.

The individual would:

- determine from their behaviour or language the other person's degree of concern or anxiety
- consider the reasons for the person's concerns and behaviour
- work towards finding common ground and opportunities for problem resolution
- consider possible courses of action and the other person's reaction to them
- take appropriate steps to resolve the conflict
- seek external assistance where the conflict could be or is escalating.

Generally the individual would be part of a team though may undertake some duties independently. At all times they would be liaising and cooperating with other members of the team.

This unit has no prerequisites.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Identify potential sources of conflict. | 1.1 Identify actions which are likely to promote a reaction in others
1.2 Assess the other persons needs and/or concerns
1.3 Assess your ability to respond to the other persons needs
1.4 Recognise possible causes of conflict
1.5 Identify potential conflict situations. |
| 2. Identify range of alternative approaches. | 2.1 Discuss with the other person their needs and concerns
2.2 Discuss with other person your needs and concerns
2.3 Identify a possible strategy through which these requirements may be achieved
2.4 Develop a range of alternative strategies for achieving goals. |

- 3. Resolve conflicts.
 - 3.1 Identify areas of common ground or objectives that can be mutually supported
 - 3.2 Agree on a strategy which will meet the majority of objectives for both parties
 - 3.3 Implement the strategy
 - 3.4 Check that the agreed requirements are being met and that conflict has been resolved.

- 4. Respond to problems.
 - 4.1 Identify possible problems in the conflict management process
 - 4.2 Determine problems needing action
 - 4.3 Determine possible causes
 - 4.4 Rectify problem using appropriate solution within area of responsibility
 - 4.5 Follow through items initiated until final resolution has occurred
 - 4.6 Report problems outside area of responsibility to designated person.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	1
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	1

RANGE STATEMENT

- telephones, two way radios
- emails, faxes,
- memos, letters or emails
- verbal, face-to-face communications.

- anger or aggression arising from industrial relations matters
- disagreements over processes or work practices
- variations in opinions about circumstances or events
- interpersonal disputes arising from changes in personal circumstances.

The identification and control of hazards and the application of OHS are to be in accordance with current, applicable legislation and regulations, and company procedures. All work is carried out at all times in accordance with these requirements.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency (eg, elements 1 to 4). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of 'what if' scenarios both on the plant (during demonstration of normal operations and walk-throughs of abnormal operations) and off the plant.

Critical aspects

It is essential that the process be understood and that the importance of interpersonal relationships is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- there is a willingness to resolve situations
- statements are used that calmly reflect the requirements of participants
- statements focus on issues and facts, not people and personalities.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk-through forming part of the response. These assessment activities should include responding to a range of problems.

Resource implications	Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.
Other assessment advice	In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units. Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.
Essential knowledge	<p>Knowledge and understanding of the process sufficient to recognise potential problems and not allow them to escalate to a conflict situation.</p> <p>Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements, along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the process.</p> <p>Competence includes the ability to:</p> <ul style="list-style-type: none">• apply and/or explain:• mapping of conflict situations• designing of options• negotiation skills• mediation skills• distinguish between:• potential and actual conflict situations• causes of conflict situations <p>as is relevant to the practical execution of the job.</p>

PMCSUP281A

Unit Descriptor

Deliver customer service

This competency covers the delivery of customer service in the workplace.

The competency is typically performed by operators, working either independently or as part of a work team. Customers may be internal or external.

This unit has no prerequisites.

This unit may be assessed in conjunction with:

PMASUP100B Apply workplace procedures

PMASUP200B Implement production efficiencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--------------------------------------|---|
| 1. Identify customer requirements. | 1.1 Identify company/team objectives and key performance indicators in meeting internal and external customer requirements
1.2 Explain the role of the quality system in meeting customer requirements
1.3 Identify the role of the individual and the team in meeting these requirements. |
| 2. Respond to customer requirements. | 2.1 Use effective questioning and listening techniques to identify customer requirements
2.2 Use quality assurance systems to ensure products and services meet customer requirements
2.3 Display a helpful and courteous attitude when responding to customer enquiries
2.4 Ensure up to date advice and product knowledge is supplied to customers
2.5 Deal with all customer requests in a timely manner
2.6 Complete all company documentation/records
2.7 Follow up customer requests and provide feedback to customers. |
| 3. Improve customer service. | 3.1 Analyse methods of improving customer service and make recommendations to appropriate personnel for improvements
3.2 Implement improvements in customer service
3.3 Provide reports and appropriate feedback in accordance with company requirements. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	2
Using mathematical ideas and techniques	2
Solving problems	2
Using technology	1

RANGE STATEMENT

- telephone
- two way radio
- computer equipment
- face-to-face interaction.

- organisational policies
- standard operating procedures and work instructions
- company business objectives and key performance indicators

as is appropriate to give effective service to customers at that level.

All operations are performed in accordance with work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of process, normal operating parameters and product quality.

Competence is to include the ability to apply:

- principles of recording and reporting
- effective questioning and answering techniques
- effective interpersonal skills

and explain:

- company product(s) and service(s)

as is relevant to the customer's requirements and the ability to operate and report at that level.

Knowledge of the relevant OHS and environmental requirements and an ability to implement them is required.

Knowledge of organisational procedures and work instructions is required.

Critical aspects

Evidence of satisfactory performance in this unit can be obtained by observation of performance and questioning to indicate understanding and knowledge of the elements of the competency and performance criteria. In addition, look to see that:

- customer requirements are accurately assessed
- customer requirements are completed within the necessary timelines
- appropriate documenting of the customer request is undertaken
- quality of customer service is evaluated
- enterprise procedures for identifying and suggesting improvements are followed
- customer complaints are effectively attended to.

Assessment method and context

Competence in this unit may be assessed by observation of the timely and effective response to internal and/or external customer requests. Where this is done, the timeframe must allow for adequate assessment under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may be assessed by a project and or a range of case studies and/or by demonstration exercises. A combination of these techniques should be used to ensure that the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge.

Resource implications

Resources required include suitable access to a workplace. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCSUP282A**Use computers and related programs in the workplace****Unit Descriptor**

This competency covers the use of computer equipment and company software programs, including selecting the correct programs for use and identifying minor faults in equipment or software.

This competency is typically performed by operators working either independently or as part of a work team.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|---|---|
| 1. Identify computer system and application for work role. | 1.1 Select computer equipment and program which are correct for the task
1.2 Turned on computer in accordance with instructions
1.3 Explained the application of software in relation to work role
1.4 Explain and follow company security/computer protection procedures. |
| 2. Open file and input/edit data. | 2.1 Logon according to procedures
2.2 Navigate network to find appropriate program/file
2.3 Identify and open file correctly
2.4 Identify data to be edited
2.5 Enter, change or delete data using keyboard/mouse or other appropriate equipment
2.6 Save data regularly to avoid loss of data
2.7 Check entered or edited data against original information to ensure accuracy of contents
2.8 Check spelling, grammar and numeric data
2.9 Proofread information prior to printout. |
| 3. Print document. | 3.1 Use print preview to check document/data for format and layout if required
3.2 Load appropriate stationary into printer
3.3 Print document/data as required
3.4 Filed hard copy in appropriate location. |
| 4. Save file and exit system. | 4.1 Save and store data in appropriate directory or folder
4.2 Close file and exit applications programs without loss of data
4.3 Back-up data if required in accordance with procedures
4.4 Store disks/data in accordance with work instructions. |
| 5. Use manuals and on-line help to solve software problems. | 5.1 Use manuals, training notes and company documentation to solve problems
5.2 Access and use on-line help to solve problems. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	1
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	2
Solving problems	2
Using technology	1

RANGE STATEMENT

- computers - stand-alone or networked
 - printers
 - mouse, keyboard
 - facsimile equipment.
-
- CC mail and email
 - word processing, database and spreadsheet programs.
-
- work orders
 - work instructions/standard operating procedures
 - email or CC mail
 - faxes
 - memos
 - tables
 - standard letters
 - standard reports.
-
- software problems, such as unable to access file, find correct page or send CC mail, input data.

All operations are performed in accordance with standard procedures and work instructions.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Evidence of knowledge of all relevant workplace procedures will include:

- principles of operation of the equipment and software
- hazard policies and procedures
- job procedures and work instructions.

Consistent performance should be demonstrated. In particular look to see that:

- in-plant computer programs are correctly utilised
- software problems are recognised and solved effectively and efficiently
- documents are completed to the standard required.

Critical aspects

Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action. The reasoning process behind the problem analysis and determining the required actions should be assessed. The emphasis should be on the ability to stay out of trouble rather than on recovery from a disaster.

Concurrent assessment and prerequisite competencies

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

**Assessment method,
context and resource
implications**

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCSUP283B

Unit Descriptor

Allocate and complete team tasks

This competency covers the identification of team goals, working in a team to achieve them, and the completion of individual tasks.

This competency is typically performed by operators who work within a team structure, with limited discretionary powers.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Identify tasks for team. | 1.1 Identify team goals with team members
1.2 Identify tasks required to achieve goals
1.3 Identify team and individual safety responsibilities
1.4 Allocate responsibilities of individuals within the team, in discussion with the team
1.5 Ensure designated team goals are met. |
| 2. Organise individual daily work plan. | 2.1 Correctly estimate time and resources needed to complete tasks safely
2.2 Renegotiate responsibilities to meet changes in the workplace
2.3 Seek assistance from other team members when needed to meet team goals. |
| 3. Participate in team. | 3.1 Acknowledge information and feedback provided by other team members in the work group
3.2 Provide support to colleagues to ensure designated team goals are met
3.3 Evaluate the team's performance according to its goals. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	3
Collecting analysing and organising information	3
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	-
Solving problems	2
Using technology	1

RANGE STATEMENT

- type of communication used within each enterprise
 - established work practices
 - size and structure of the teams
 - team goals - individual, section, enterprise.
-
- procedures/work instructions
 - materials safety data sheets
 - job cards
 - maintenance logs
 - plant drawings.
-
- required information/materials not available
 - required tool/equipment not available
 - conflicting priorities
 - short timeframe.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the organisation's information systems, procedures and equipment sufficient to participate in the allocation and completion of team tasks.

Knowledge of the enterprise's standard procedures and work instructions, along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the system.

Competence includes the ability to:

- apply and/or explain:
 - effective use of teamwork
 - impact of individual team member strengths/weaknesses/competencies on the allocation of responsibilities
 - OHS roles and responsibilities of the individual and the team
 - effective use of workplace documentation
- distinguish between:
 - team and individual goals

as is relevant to the practical operation of the system.

Critical aspects

Competence must be demonstrated in the ability to identify work activities and prioritise work in order to meet timelines, whilst interacting as a member of a group.

Consistent performance should be demonstrated. In particular look to see that:

- there is a willingness to participate as part of a group
- there is an understanding of teamwork
- there is an understanding of how individual task completion affects team objectives
- support is sought from and given to colleagues to achieve team objectives
- allocated tasks are completed safely and within timelines
- relevant procedures are found and used in completing activities.

Concurrent assessment and prerequisite competencies

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

**Assessment method,
context and resource
implications**

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCSUP292A

Unit Descriptor

Sample and test materials and product

This competency covers the taking of routine samples and the conducting of simple tests.

This competency is typically performed by operators working either independently or as part of a work team.

This unit, included as PML99 Laboratory Operations, is currently under review. Once the reviewed PML04 is available it would be preferable to use a relevant unit from PML04. It is expected that PMCSUP292A Sample and test materials and product will be replaced by a relevant unit from PML04 at an appropriate time.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---------------------------------------|--|
| 1. Take sample. | <ul style="list-style-type: none"> 1.1 Determine type of sample and sampling equipment required 1.2 Check sampling equipment is clean and in good order 1.3 Take sample(s) of required type(s), from the required place(s) and at the required time(s) and place(s) in required container(s) 1.4 Label sample(s) 1.5 Carry sample(s) to required place. |
| 2. Complete test. | <ul style="list-style-type: none"> 2.1 Check test required from procedures/work instruction 2.2 Check sample identification and integrity 2.3 Check test equipment is clean, in good order and within calibration 2.4 Complete test(s) required as per standard procedures/instructions. |
| 3. Interpret results and take action. | <ul style="list-style-type: none"> 3.1 Note anything about sample, equipment or the test itself which may have caused it to give a bad result 3.2 Compare results to specification 3.3 Take action appropriate to the test results and any other observations. |
| 4. Complete sample and test cycle. | <ul style="list-style-type: none"> 4.1 Complete required records 4.2 Store and/or dispose of sample as required 4.3 Clean all equipment and leave ready for next sample/test. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency unit includes the range of sampling and testing which may be carried out in the plant or in a plant laboratory. It typically applies to operators who carry out a narrow range of tests as part of their job.

- PMCSUP391A Collect and prepare standard samples
 - PMCSUP392A Perform qualitative and quantitative tests
 - PMCSUP393A Operate laboratory equipment and instruments.
-
- correct sampling technique
 - test equipment condition/calibration
 - consistent test technique according to standard procedure/work instructions
 - correct recording of result
 - interpretation of result and the initiation of appropriate action
 - correct retention/disposal of sample/test materials.

All operations are performed in accordance with standard procedures and work instructions

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the sampling and testing techniques used sufficient to recognise a suspicious test result caused by a fault in these areas.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within an appropriate timeframe and in a manner relevant to the completion of the sample/test cycle.

Competence includes the ability to:

- apply and/or describe:
 - principles of taking this particular sample
 - principles of this particular test
- distinguish between causes of out of specification/suspicious results such as:
 - sample
 - test
 - process

as is relevant to the practical operation of the sample/test cycle.

Critical aspects

It is essential that the specific techniques be understood and that the importance of critical sampling and testing factors is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- reproducible results are obtained
- suspicious results are identified and appropriate action taken
- all equipment is maintained in a clean state and in good order.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Concurrent assessment and prerequisite competencies

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

**Assessment method,
context and resource
implications**

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCSUP380B

Oversee team performance

Unit Descriptor

This competency covers identifying the team's goals and timelines, negotiating with the team to allocate tasks and ensuring the goals and timelines are met.

This competency is typically performed by more experienced operators who work in a team structure and may coordinate team functions within designated goals.

This unit has the prerequisite competencies of:

PMCSUP280A Manage conflict at work.

PMCSUP280A Manage conflict at work

Prerequisite Unit(s)

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Clarify tasks to achieve team goals. | 1.1 Clearly identify and agree team goals with team members
1.2 Identify tasks required to achieve the goals
1.3 Identify strategies and timelines required to complete tasks safely. |
| 2. Negotiate allocation of tasks. | 2.1 Identify competencies of individual team members
2.2 Allocate and negotiate individual responsibilities
2.3 Agree with team members timelines for completion of tasks
2.4 Identify and make available resources and support necessary for completion of job. |
| 3. Monitor completion of allocated tasks. | 3.1 Monitor individual compliance with procedures and take action as required
3.2 Check at regular intervals that agreed timelines for completion of tasks are being met
3.3 Negotiate alternative strategies to achieve allocated tasks when designated timelines are not being met
3.4 Provide support to colleagues to ensure completion of allocated tasks. |
| 4. Resolve conflicts between team members. | 4.1 Identify conflict situations between team members
4.2 Identify causes of conflict
4.3 Implement conflict resolution procedures relevant to the level of conflict and to established practices. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	3
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	3
Using mathematical ideas and techniques	1
Solving problems	3
Using technology	1

RANGE STATEMENT

- mode of communication procedure used within each enterprise
- established work procedures and policies
- size and structure of the teams/enterprise
- group goals - team, section, enterprise
- enterprise specific conflict resolution procedures.

- procedures and work instructions
- materials safety data sheets
- job cards
- maintenance logs
- plant drawings.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the system sufficient to indicate understanding and knowledge of negotiating with team members to allocate and complete tasks to achieve team goals.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements, along with the ability to implement them within appropriate time constraints and in a manner relevant to the operation of the system.

Competence includes the ability to:

- apply and explain:
 - teamwork strategies
 - working to timelines
 - allocation of tasks
 - health, safety and environment obligations of employers and employees imposed by the relevant legislation
- distinguish between:
 - team, section and enterprise goals

as is relevant to the practical operation of the system.

Critical aspects

Competence must be demonstrated in the ability to identify and prioritise work activities, and to negotiate and monitor work activities.

Consistent performance should be demonstrated. In particular look to see that:

- enterprise goals are maintained
- team members are coached and supported to achieve team goals
- timelines are agreed upon
- allocation of tasks, responsibilities and resources are appropriate
- allocated tasks are completed safely and within timelines
- discrepancies in team member performance is identified and followed through.

Concurrent assessment and prerequisite competencies

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

**Assessment method,
context and resource
implications**

Competence in this unit may be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resources required include suitable access to an operating plant which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCSUP381B

Carry out stock control

Unit Descriptor

In a typical scenario, a senior operator, or supervisor in a large plant looks after the monitoring and reordering of stock to effectively control the purchase of stock for production.

Typically the operator would:

- monitor stock movements in accordance with standard operating procedures (SOPs)
- maintain stock records
- participate in and/or supervise stocktakes
- report stock abnormalities or variations from invoices or works orders
- facilitate stock control changes.

This competency is typically performed by an experienced operator, leading hand or supervisor. At all times they would be liaising and cooperating with other members of the team.

Unit Sector

This unit has no prerequisites.

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Monitor stock reordering. | 1.1 Monitor stock levels and maintain them at optimum levels
1.2 Adjusted stock reorder levels as required in response to customer demand
1.3 Report to suppliers variations to quality and quantity of delivered goods
1.4 Identify alternative suppliers which meet required quality and safety standards and utilised them when required
1.5 Reorder stock in compliance with all procedures and work instructions. |
| 2. Maintain inventory records systems. | 2.1 Maintain accurate records of the storage and the movement of stock
2.2 Identify, and act upon, stock discrepancies
2.3 Ensure minimum inconvenience to customers resulting from stock movements. |
| 3. Undertake stocktaking and cyclical counts. | 3.1 Interpret inventory data and confirm it matches stock
3.2 Reconcile of inventory data
3.3 Report stock variations or shortages
3.4 Identify missing or damaged stock and report as required by SOPs. |
| 4. Control hazards. | 4.1 Identify hazards in the work area
4.2 Assess the risks arising from those hazards
4.3 Implement measures to control those risks in line with procedures and duty of care. |

- 5. Respond to problems.
 - 5.1 Identify possible problems in equipment or process
 - 5.2 Determine problems needing action
 - 5.3 Determine possible fault causes
 - 5.4 Rectify problem using appropriate solution within area of responsibility
 - 5.5 Follow through items initiated until final resolution has occurred
 - 5.6 Report problems outside area of responsibility to designated person.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	1
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

- enterprise inventory system, which may be paper or computer based
- enterprise inventory practices and procedures
- production planning and scheduling.

- stock discrepancies between inventory system and actual stock on hand
- deviations from supplier contracts/performance agreements
- stock control and production planning discrepancies.

The identification and control of hazards and the application of OHS are to be in accordance with current, applicable legislation and regulations, and company procedures. All work is carried out at all times in accordance with these requirements.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating purchasing system. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency (eg, element 5). Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of 'what if' scenarios both on the plant (during demonstration of normal operations and walk-throughs of abnormal operations) and off the plant.

Critical aspects

It is essential that the system be understood and that the importance of inventory management in relation to effective production planning is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that:

- stock levels are accurate, discrepancies are acted upon and stock levels are maintained
- variations to quality and quantity of delivered goods are rectified
- alternative suppliers can be sourced on request
- stock is on hand to ensure efficient production.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk-through forming part of the response. These assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Essential knowledge

Knowledge and understanding of the process and production requirements sufficient to ensure stock availability for meeting production needs.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within an appropriate timeframe and in a manner relevant to a smooth work flow and production requirements.

Competence includes the ability to apply and explain:

- production requirements and stock availability
- effective inventory management techniques
- accuracy of inventory
- supplier contractual requirements
- stock optimum levels and relationship with cost

as is relevant to ensuring effective inventory management.

PMCSUP382A
Unit Descriptor

Provide coaching/mentoring in the workplace

This competency covers the skills and knowledge required to act as a mentor/coach to other individuals in the workplace. Coaching and mentoring are undertaken within the coach/mentor's area of expertise on a one on one basis.

Typically a coach/mentor would:

facilitate the exploration of needs, motivations and thought processes to assist the individual in identifying areas for development

observe, listen and ask questions to identify the employee's situation

use questioning techniques to identify solutions and actions rather than take a directive approach

support the employee in setting appropriate goals and methods of assessing progress in relation to goals

provide encouragement, support and constructive feedback

apply tools and techniques which may include one on one training, facilitating, counselling and networking

evaluate outcomes of process to ensure the employee is achieving goals.

This competency is typically performed by senior operators or team leaders who have significant workplace experience. At all times they would be liaising with relevant personnel when undertaking the coaching/mentoring role.

This unit has no prerequisites.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

1. Establish coaching/ mentoring relationship.

- 1.1 Identify areas for development in line with organisational and individual's requirements
- 1.2 Use effective communication styles to develop trust, confidence and rapport
- 1.3 Make arrangements on how the relationship will be conducted including:
 - 1.3.1 the amount of time involved for both parties
 - 1.3.2 confidentiality of information
 - 1.3.3 identification of development opportunities
 - 1.3.4 development plan towards achieving goals
- 1.4 Discuss and clarify expectations and goals
- 1.5 Seek input from other relevant personnel if required.

- 2. Provide coaching/mentoring support.
 - 2.1 Assist the individual to identify and evaluate opportunities to achieve agreed goals/development activities
 - 2.2 Share personal experiences and knowledge with the individual to assist in progress to agreed goals/development
 - 2.3 Provide a supportive environment to allow the individual to develop towards the achievement of goals
 - 2.4 Encourage the individual to make decisions and take responsibility for the courses of actions or solutions under consideration
 - 2.5 Provide assistance and guidance in a manner which allows the individual to retain responsibility for achievement in their goals.

- 3. Evaluate effectiveness of coaching/mentoring.
 - 3.1 Recognise and openly discuss changes in the coaching/mentoring relationship
 - 3.2 Make adjustments to the relationship to take account of the needs of both the mentor/coach and the individual
 - 3.3 Seek feedback from individual and other relevant personnel to identify and implement improvements.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	1

RANGE STATEMENT

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to OHS and environmental issues, equal opportunity, industrial relations and anti-discrimination
- relevant industry codes of practice.

- acquisition of specific business competencies
- progress with overall business development
- individual and personal development.

- inability of one party to continue participation
 - identification of a need for assistance from others with different skills
 - achievement of goals and decision to conclude the relationship
 - change in the dynamic of the relationship.
-
- informal discussion
 - obtaining feedback from supervisors or colleagues
 - personal, reflective behaviour strategies
 - routine organisational methods for monitoring service delivery.
-
- training development officer/assessor
 - supervisor/training manager
 - other members of the organisation
-
- quality assurances and/or procedures manuals
 - goals, objectives, plans, systems and processes
 - legal and organisational policy/guidelines and requirements
 - OHS policies, procedures and programs
 - confidentiality and security requirements
 - business and performance plans
 - anti-discrimination and related policy
 - access and equity principles and practice
 - ethical standards
 - quality and continuous improvement processes and standards.

All operations are performed in accordance with standard procedures and work instructions.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE**Assessment context and methods**

The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations.

Assessment for this unit may include performance and knowledge evidence, periodic assessments, interview with mentoree to evaluate mentor/coach's skills and structured or unstructured simulations or case study/scenarios.

Critical aspects

It is essential that an understanding of mentoring/coaching and its role and benefits is understood. Competence must be demonstrated in communication skills in relation to listening, questioning, providing constructive feedback and non-verbal communication.

Consistent performance should be demonstrated. In particular look to see:

an understanding in the role and benefits of mentoring/coaching in the business

use of significant workplace knowledge and experience to assist another individual to achieve their goals/development needs

application of effective communication styles

a learning environment is effectively created that allows for open discussion, feedback, tolerance of mistakes during learning within a safe environment, and affirmation of the individual's worthiness.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit. These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment may require access to an operating plant, or a suitable method of gathering evidence where the mentoring/coaching is related to the development of technical competencies of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

Essential knowledge

Knowledge of the principles of coaching and mentoring for development of competence.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to apply them to the coaching/mentoring process.

Competence includes the ability to:

apply and/or explain:

- how to work effectively with individuals who have diverse work styles, aspirations, cultures and perspectives
- effective methods of coaching/mentoring
- organisation's policies, procedures and plans
- methods and techniques for eliciting and interpreting feedback
- relevant career paths and competency standards in the organisation
- methods for identifying development opportunities

effective planning skills to organise activities

communication skills in giving, receiving and analysing feedback.

as is relevant to the process of mentoring/coaching.

PMCSUP391A

Unit Descriptor

Collect and prepare standard samples

This competency covers the collection and preparation of standard samples for testing.

This competency is typically performed by an experienced operator, leading hand, supervisor or laboratory operator/technician.

This unit is included as PML99 Laboratory Operations is currently under review. Once the reviewed PML04 is available it would be preferable to use a relevant unit from PML04. It is expected that PMCSUP391A Collect and prepare standard samples will be replaced by a relevant unit from PML04 at an appropriate time.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Receive, handle and store samples. | 1.1 Follow standard procedures for:
registering samples on receipt
checking labelling and history of sampling
recording sample information
forwarding samples to relevant laboratories (internal or external)
1.1 Observe universal precautions and relevant legislative requirements during the handling and storage of all samples
1.2 Dispose of unwanted samples appropriately. |
| 2. Prepare for sample collection. | 2.1 Confirm the type of sample required prior to collection
2.2 Follow prescribed procedures to ensure representative sampling and record details
2.3 Prepare/assemble appropriate sampling equipment. |
| 3. Perform sample collection. | 3.1 Collect gross samples in accordance with procedures
3.2 Preserve sample integrity throughout all aspects of sampling
3.3 Place samples in suitable containers and label clearly identifying sample type, location, date and any other pertinent information
3.4 Store preserve and transport samples in accordance with relevant regulations and laboratory procedures
3.5 Keep sampling equipment in a clean and safe state
3.6 Recognise and report any unusual or non-standard observations made during sampling. |
| 4. Perform physical sample preparation as required. | 4.1 Identify samples and confirm their history as per procedure
4.2 Prepare/assemble equipment appropriate to the chosen sub-sampling technique
4.3 Perform sub-sampling in accordance with procedures
4.4 Prevent/minimise loss or contamination of material. |

PMCSUP391A Collect and prepare standard samples

- 5. Perform standard sample preparation as required.
 - 5.1 Samples and controls are prepared for analysis
 - 5.2 Action is taken to minimise loss of analytes from sample
 - 5.3 Separation equipment is used to provide the required sample fractions.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

- raw materials
- products
- by-products
- waste
- naturally occurring substances (the exact nature of which will depend on the ambit of the laboratory and enterprise)
- regulations governing transport and storage of dangerous goods

- • measuring
- cutting
- blending
- coning and quartering
- crushing
- digestion
- dilution
- grinding
- homogenisation
- purification
- riffing
- separation
- sieving
- forwarding samples to relevant internal or external laboratories in accordance with relevant regulations and procedures as required
- disposal of unwanted samples in accordance with procedures and legislative requirements
- performing non-standard or specialised sampling under supervision.

All operations are performed in accordance with standard procedures and work instructions

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the process sufficient to recognise irregularities which might cause a problem in the testing or interpretation of results

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement within appropriate time constraints and in a manner relevant to the operation of the process.

Competence includes the ability to:

- apply and explain:
 - principles of sample collection
 - principles of sample handling, storage and identification

as is relevant to the practical operation of the equipment/process/system.

Critical aspects

It is essential that the process be understood and that the importance of critical material properties and sampling techniques is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that they can:

- collect representative samples, and prepare, preserve and store them following standard procedures, universal precautions and legislative requirements
- accurately document all pertinent sample information in the required format
- collect, receive, handle and store specimens in accordance with laboratory procedures, universal precautions and legislative requirements
- prepare samples and sub-samples following laboratory procedures
- follow correct disposal procedures
- recognise sampling equipment and, as required, maintain it in good condition.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Concurrent assessment and prerequisite competencies

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

**Assessment method,
context and resource
implications**

Competence in this unit may be assessed by observation over time on an operating plant/laboratory. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resources required include suitable access to an operating plant/laboratory or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCSUP392A

Unit Descriptor

Perform basic laboratory tests

This competency covers the carrying out of basic laboratory type tests.

This competency is typically performed by an experienced operator, leading hand, supervisor or laboratory operator/technician.

This unit is included as PML99 Laboratory Operations is currently under review. Once the reviewed PML04 is available it would be preferable to use a relevant unit from PML04. It is expected that PMCSUP392A Perform basic laboratory tests will be replaced by a relevant unit from PML04 at an appropriate time.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Prepare samples and apparatus. | 1.1 Confirm the nature of the sample and of the required test procedures
1.2 Set up relevant apparatus and confirm calibration. |
| 2. Perform qualitative tests and procedures. | 2.1 Perform qualitative tests to observe properties
2.2 Compare data with standards or other reference materials and record results following appropriate procedures
2.3 Complete tests within required timeframe
2.4 Maintain specimen collections as required. |
| 3. Perform quantitative tests. | 3.1 Complete standardisation procedures prior to the test and record results
3.2 Perform quantitative tests to measure properties
3.3 Compare data with standards or other reference materials and report if outside reference range
3.4 Complete tests within the required timeframe. |
| 4. Record results accurately. | 4.1 Record data using appropriate form/book or software system
4.2 Convert instrument readouts and data into a form suitable for interpretation using given formulae or conversion factors
4.3 Compare results with product specifications or other quality control information and report non-conformance. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	2
Solving problems	2
Using technology	2

RANGE STATEMENT

This competency is typically performed by laboratory assistants or operators with testing responsibilities.

- performing qualitative and quantitative tests using manual, semi or fully automated procedures involving techniques and materials consistent with the laboratory's classification and accreditation
 - performing tests in accordance with established procedures
 - undertaking tests depending on the scope of the laboratory and the nature of the enterprise
 - a range of work depending on the size and nature of the enterprise
-
- • pH
 - trace elements
 - specific ions
 - spot
 - colour
 - appearance
 - observations including microscopic examination and visual examination of samples, specimens and packaging
 - standard tests with predetermined protocols that need to be available and are to be followed
-
- solids content
 - tex/yardage
 - moisture content
 - glass fibre density
 - solubility
 - calorimetry (transition temperature)
 - chromatography
 - elasticity (extensograph)
 - gas liquid chromatography and high pressure liquid chromatography
 - gravimetry
 - optical (refractive index, rotation)
 - potentiometry
 - spectrometry
 - spectrophotometry (ultraviolet, visible)
 - viscosity (eg, Brookfield)
 - volumetric analysis.

All operations are performed in accordance with standard procedures and work instructions.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the technique sufficient to recognise sources of error and results requiring action.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the performing of the tests.

Competence includes the ability to:

- apply and explain:
 - principles of tests performed
- distinguish between causes of results outside of specification such as:
 - out of specification material/product
 - sampling error
 - testing error

as is relevant to the practical completion of the tests.

Critical aspects

It is essential that the techniques be understood and that the importance of critical reagent properties/test variables is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular they should be able to:

- conduct qualitative and quantitative tests to obtain reliable data
- record and present data accurately
- confirm data complies with quality control limits.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Concurrent assessment and prerequisite competencies

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

**Assessment method,
context and resource
implications**

Competence in this unit may be assessed by observation over time on an operating plant/laboratory. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

PMCSUP393A

Unit Descriptor

Perform instrumental analysis

This competency covers the operation of a range of standard laboratory type test equipment/instruments, which may, or may not, be located in a laboratory.

This competency is typically performed by an experienced operator, leading hand, supervisor or laboratory operator/technician.

This unit is included as PML99 Laboratory Operations is currently under review. Once the reviewed PML04 is available it would be preferable to use a relevant unit from PML04. It is expected that PMCSUP393A Perform instrumental analysis will be replaced by a relevant unit from PML04 at an appropriate time.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Perform set-up and pre-use checks of laboratory equipment. | 1.1 Complete safety checks in accordance with the relevant manual or operating procedures
1.2 Report damaged, faulty or unsafe instruments
1.3 Optimise instrument settings for the particular task under direction
1.4 Maintain instrument log books
1.5 Replace simple or modular components where appropriate. |
| 2. Perform calibration checks and operate instruments as directed. | 2.1 Start up and shut down the instrument as required
2.2 Maintain calibration schedules and records
2.3 Complete tests with the required accuracy and precision
2.4 Complete tests in priority order so that time and materials are used efficiently
2.5 Report unexpected results promptly. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	2
Solving problems	2
Using technology	2

RANGE STATEMENT

- analytical balances
- auto-pipettes
- autoclaves
- autotitrators
- biohazard cabinets
- burettes
- centrifuges
- colourimeters/spectrophotometers
- conductivity meters
- glassware
- incubators
- optical microscopes
- ovens
- pH meters
- tensometers.

All operations are performed in accordance with standard procedures and work instructions.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the techniques sufficient to recognise a suspect result/malfunctioning item of equipment.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the completion of the technique.

Competence includes the ability to:

- apply and explain:
 - principles of technique
 - principles of operation of the equipment
- distinguish between causes of suspect results such as:
 - equipment malfunction
 - technique
 - sample

as is relevant to the practical completion of the test.

Critical aspects

It is essential that the technique be understood and that the importance of critical sample properties and instrument/equipment settings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look to see that they are able to:

- perform safety checks, check and adjust settings of basic equipment and perform calibration checks using standard procedures
- operate simple instruments using standard operating procedures to obtain data of the required accuracy and precision
- recognise non-standard behaviour of equipment and instruments, diagnose and conduct minor repairs
- keep accurate records of all instrument performance and usage.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.

Concurrent assessment and prerequisite competencies

This unit has no prerequisite competencies.

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes.

**Assessment method,
context and resource
implications**

Competence in this unit may be assessed by observation over time on an operating plant or laboratory. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the language and literacy levels of the operator and reflecting the requirements of the competency.

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunch room. No other special resources are required.

BSBCM402A

Unit Descriptor

Develop work priorities

This unit covers the skills and knowledge required to plan own work schedules, monitor and obtain feedback on work performance and development.

This unit is related to BSBCM302A Organise personal work priorities and development.

Competency Field

Common

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Plan and complete own work schedule | <ul style="list-style-type: none"> 1.1 <i>Workgroup</i> plans are prepared to reflect consideration of resources, client needs and workgroup targets 1.2 <i>Work objectives</i> and priorities are analysed and incorporated into personal schedules and responsibilities 1.3 <i>Factors</i> affecting the achievement of work objectives are identified and contingencies established and incorporated into work plans 1.4 <i>Business technology</i> is used efficiently and effectively to manage and monitor planning completion and scheduling of tasks |
| 2. Monitor own work performance | <ul style="list-style-type: none"> 2.1 Personal performance standards are identified and analysed through self-assessment and feedback from others on the achievement of work objectives 2.2 <i>Feedback on performance</i> is actively sought from colleagues and clients and evaluated in context of individual and group requirements 2.3 Variations in the quality of service and products are routinely identified and reported in accordance with <i>organisational requirements</i> |
| 3. Coordinate professional development | <ul style="list-style-type: none"> 3.1 Personal knowledge and skills are assessed against <i>competency standards</i> performance descriptions to determine development needs and priorities 3.2 Opportunities for improvement and sources of learning are researched and planned in liaison with colleagues 3.3 <i>Feedback</i> is used to identify and develop ways to improve competence within available opportunities 3.4 New skills are identified and <i>professional development activities</i> are accessed and completed to facilitate continuous learning and career development 3.5 Records and documents relating to achievements and assessments are stored and maintained in accordance with organisational requirements |

KEY COMPETENCIES

NB:These levels do not relate to the Australian Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	with members of the work team	2
Collecting analysing and organising information	to measure self-performance	2
Planning and organising activities	for self	2
Working with others and in teams	in completing scheduled tasks	2
Using mathematical ideas and techniques	as an aid to measure and schedule tasks	1
Solving problems	as an aid to self-development	2
Using technology	to manage scheduling and completion of tasks	2

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- relevant industry codes of practice

- sales plans
- reporting plans
- production plans
- budgetary plans
- team participation
- work schedules
- team and individual learning goals

- sales targets
- reporting deadlines
- production targets
- budgetary targets
- team participation
- team and individual learning goals

- competing work demands
 - technology/equipment breakdowns
 - unforeseen incidents
 - personnel
 - environmental factors such as time, weather, etc
 - resource and materials availability
 - budget constraints
-
- computers
 - computer applications
 - personal schedules
 - modems
 - scanners
 - email and internet/intranet/extranet
 - photocopiers
 - facsimile machines
 - printers
-
- formal/informal performance appraisals
 - obtaining comments from supervisors and colleagues
 - obtaining comments from clients
 - personal, reflective behaviour strategies
 - routine organisational methods for monitoring service delivery
-
- quality assurances and/or procedures manuals
 - goals, objectives, plans, systems and processes
 - legal and organisational policy/guidelines and requirements
 - business and performance plans
 - access and equity principles and practice
 - ethical standards
 - Occupational Health and Safety policies, procedures and programs
 - quality and continuous improvement processes and standards
 - defined resource parameters
-
- all those personal and technical knowledge, skills and attitudinal aspects (competencies) required to effectively and efficiently undertake the day to day tasks and duties of the practitioner's work function

- coaching, mentoring and/or supervision
- formal/informal learning programs
- internal/external training provision
- work experience/exchange/opportunities
- personal study
- career planning/development
- performance appraisals
- workplace skills assessment
- Recognition of Prior Learning

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, underpinning knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range Statement.

Critical Aspects of Evidence

- Preparing and communicating work plans
- Scheduling work objectives and tasks to support the achievement of goals
- Seeking and acting on feedback from clients and colleagues
- Reviewing own work performance against achievements through self-assessment
- Accessing learning opportunities to extend own personal work competencies
- Using business technology to monitor self development

Underpinning Knowledge

- The relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- Understanding the organisation's policies, plans and procedures
- Understanding of methods to elicit, analyse and interpret feedback
- Knowledge of techniques to prepare personal plans and establish priorities
- Knowledge of quality standards for products and services
- Knowledge of relevant business technology applications
- Understanding of methods to evaluate own performance
- Processes to interpret competency standards and apply them to self
- Methods to identify and prioritise personal learning needs
- Understanding range of professional development activities and criteria to apply in choosing between them

At this level the learner must demonstrate understanding of a broad knowledge base incorporating some theoretical concepts.

Underpinning Skills

- Literacy skills to understand the organisation's policies and procedures; interpret competency standards; use a variety of strategies for planning and reviewing own work
- Problem solving skills to develop contingency plans
- Evaluation skills for assessing outcomes
- Communication skills including giving and receiving constructive feedback on development needs
- Technology skills including the ability to select and use technology appropriate to a task
- Time management skills to complete tasks within agreed timeframes
- Observation skills for identifying opportunities for learning and development
- Participation skills for integrating as a member of a work team
- Ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities

Resource Implications

The learner and trainer should have access to appropriate documentation and resources normally used in the workplace

Consistency of Performance

In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations

Context/s of Assessment

- Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement
- Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package
- Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment
- Assessment should reinforce the integration of the key competencies and the Business Services Common Competencies for the particular AQF Level. Refer to the Key Competency Levels

BSBCMN404A

Unit Descriptor

Develop teams and individuals

This unit covers the skills and knowledge required to determine individual and team development needs and facilitate the development of the workgroup.

This unit is related to BSBCMN304A Contribute to personal skill development and learning.

Competency Field

Common

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Determine development needs | 1.1 <i>Learning and development needs</i> are systematically identified and implemented in line with <i>organisational requirements</i>
1.2 A learning plan to meet individual and group training and development needs is collaboratively developed, agreed to and implemented
1.3 Individuals are encouraged to self evaluate performance and identify areas for improvement
1.4 <i>Feedback on performance</i> of team members is collected from relevant sources and compared with established team learning needs |
| 2. Develop individuals and teams | 2.1 Learning and development program goals and objectives are identified to match specific knowledge and skill requirements of <i>competency standards</i>
2.2 <i>Learning delivery methods</i> are appropriate to the learning goals, the learning style of participants, and availability of <i>equipment and resources</i>
2.3 Workplace learning opportunities and <i>coaching and mentoring assistance</i> are provided to facilitate individual and team achievement of competencies
2.4 Development opportunities incorporate a range of activities and support materials appropriate to the achievement of identified competencies
2.5 Resources and timelines required for learning activities are identified and approved in accordance with organisational requirements |
| 3. Monitor and evaluate workplace learning | 3.1 Feedback from individuals or teams is used to identify and implement improvements in future learning arrangements
3.2 Outcomes and performance of individuals/teams are assessed and recorded to determine the effectiveness of development programs and the extent of additional development support
3.3 Modifications to learning plans are negotiated to improve the efficiency and effectiveness of learning
3.4 Records and reports of competency are documented and maintained within organisational requirements |

KEY COMPETENCIES

NB:These levels do not relate to the Australian Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	with members of the work team	2
Collecting analysing and organising information	to measure team performance	2
Planning and organising activities	for learning opportunities	2
Working with others and in teams	in completing scheduled tasks	2
Using mathematical ideas and techniques	as an aid to measure learning outcomes	2
Solving problems	as an aid to team-development	2
Using technology	to manage scheduling of tasks	2

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- relevant industry codes of practice

- coaching, mentoring and/or supervision
- formal/informal learning programs
- internal/external training provision
- work experience/exchange/opportunities
- personal study
- career planning/development
- performance appraisals
- workplace skills assessment
- Recognition of Prior Learning

- quality assurances and/or procedures manuals
 - goals, objectives, plans, systems and processes
 - legal and organisational policy/guidelines and requirements
 - Occupational Health and Safety policies, procedures and programs
 - confidentiality and security requirements
 - business and performance plans
 - anti-discrimination and related policy
 - access and equity principles and practice
 - ethical standards
 - quality and continuous improvement processes and standards
 - defined resource parameters
-
- formal/informal performance appraisals
 - obtaining feedback from supervisors and colleagues
 - obtaining feedback from clients
 - personal, reflective behaviour strategies
 - routine organisational methods for monitoring service delivery
-
- all those personal and technical knowledge, skills and attitudinal aspects (competencies) required to effectively and efficiently undertake the day to day tasks and duties of the practitioner's work function
-
- on-the-job coaching or mentoring
 - problem solving
 - presentations/demonstrations
 - formal course participation
 - work experience
 - involvement in professional networks
 - conference and seminar attendance
 - induction
-
- funding
 - facilities
 - guest speakers
 - training equipment such as whiteboards and audio-visual equipment
 - technological tools and equipment
 - time

- providing feedback to another team member
- fair and ethical practice
- non-discriminatory processes and activities
- respecting the contribution of all participants and giving credit for achievements
- presenting and promoting a positive image of the collective group
- problem solving
- providing encouragement

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, underpinning knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range Statement.

Critical Aspects of Evidence

- Identifying and implementing learning opportunities for others
- Giving and receiving feedback constructively
- Facilitating participation of individuals in the work of the team
- Negotiating learning plans to improve the effectiveness of learning
- Preparing learning plans to match skill needs
- Accessing and designing learning opportunities

Underpinning Knowledge

- The relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- Knowledge of the principles of coaching and mentoring for development of competence
- Understanding how to work effectively with team members who have diverse work styles, aspirations, cultures and perspectives
- Understanding how to facilitate team development and improvement
- Knowledge of the organisation's policies, plans and procedures
- Understanding methods and techniques for eliciting and interpreting feedback
- Understanding methods for identifying and prioritising personal development opportunities and options
- Knowledge of career paths and competency standards in the industry

At this level the learner must demonstrate understanding of a broad knowledge base incorporating some theoretical concepts.

Underpinning Skills

- Literacy skills to read and understand a variety of texts; prepare general information and papers according to target audience; spell with accuracy; use grammar and punctuation effectively as an aid to understanding; maintain records of learning
- Communication skills including receiving feedback and reporting, maintaining effective relationships and conflict management
- Planning skills to organise required resources and equipment to meet learning needs
- Coaching and mentoring skills to provide support to colleagues
- Report writing skills to organise information; assess information for relevance and accuracy; identify and elaborate on learning outcomes
- Facilitation skills to conduct small group training sessions
- Time management skills for scheduling learning programs within work activities
- Ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities

Resource Implications

The learner and trainer should have access to appropriate documentation and resources normally used in the workplace

Consistency of Performance

In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations

Context/s of Assessment

- Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement
- Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package
- Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment
- Assessment should reinforce the integration of the key competencies and the Business Services Common Competencies for the particular AQF Level. Refer to the Key Competency Levels

BSBCMN410A

Coordinate implementation of customer service strategies

Unit Descriptor

This unit covers the skills and knowledge required to advise on, and carry out customer service strategies, and evaluate customer strategies on the basis of feedback and design strategies for improvement.

This unit is related to BSBCMN310A Deliver and monitor a service to customers.

Competency Field

Common

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Advise on customer service needs | <ul style="list-style-type: none"> 1.1 Customer service <i>needs</i> are clarified and accurately assessed using appropriate <i>communication techniques</i> 1.2 Problems matching service delivery to <i>customers</i> are diagnosed and options for improved service are developed within <i>organisational requirements</i> 1.3 Advice is relevant, constructive and promotes the improvement of customer service delivery 1.4 <i>Business technology</i> is used to structure and present information on customer service needs |
| 2. Support implementation of customer service strategies | <ul style="list-style-type: none"> 2.1 Customer service strategies and opportunities are promoted to <i>designated individuals and groups</i> 2.2 Available budget resources are identified and allocated to fulfil customer service objectives 2.3 <i>Procedures to resolve customer difficulties and complaints</i> are actioned promptly within organisational requirements 2.4 <i>Coaching and mentoring assistance</i> is provided to colleagues to overcome difficulties in meeting <i>customer service standards</i> 2.5 Decisions to implement strategies are taken in consultation with designated individuals and groups |
| 3. Evaluate and report on customer service | <ul style="list-style-type: none"> 3.1 Client satisfaction with service delivery is reviewed using verifiable data in accordance with organisational requirements 3.2 Changes necessary to maintain service standards are identified and reported to designated groups and individuals 3.3 Conclusions and recommendations are prepared from verifiable evidence and provide constructive advice on future directions of client service strategies 3.4 Systems, records and reporting procedures are maintained to compare changes in customer satisfaction |

KEY COMPETENCIES

NB:These levels do not relate to the Australian Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	on products and services	2
Collecting analysing and organising information	to monitor and report on customer services	2
Planning and organising activities	to enhance products and services	2
Working with others and in teams	in completing scheduled tasks	2
Using mathematical ideas and techniques	to determine service or product costs	2
Solving problems	to respond to customer enquiries or complaints	2
Using technology	to complete allocated tasks	2

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- relevant industry codes of practice

- advice or general information
- specific information
- further information
- making an appointment
- complaints
- purchasing organisation's products and services
- returning organisation's products and services
- accuracy of information
- fairness/politeness
- prices/value

- consultation methods, techniques and protocols
 - analysing customer satisfaction surveys
 - conducting interviews
 - questioning
 - summarising and paraphrasing
 - seeking feedback to confirm understanding
 - making recommendations
 - obtaining management decisions
 - analysing quality assurance data
-
- internal or external
 - other agencies
 - individual members of the organisation
 - corporate customers
 - individual members of the public
-
- quality assurances and/or procedures manuals
 - goals, objectives, plans, systems and processes
 - legal and organisational policy/guidelines and requirements
 - Occupational Health and Safety policies, procedures and programs
 - confidentiality and security requirements
 - anti-discrimination and related policy
 - access and equity principles and practice
 - ethical standards
 - quality and continuous improvement processes and standards
 - defined resource parameters
 - who is responsible for products or services
 - pricing and discount policies
 - replacement and refund policy and procedures
 - payment and delivery options
-
- photocopier
 - computer
 - printer
 - binder
 - shredder
 - answering machine
 - fax machine
 - telephone
-
- supervisor
 - customers
 - colleagues
 - external organisation
 - committee
 - line management

- using conflict management techniques
 - refund of monies
 - item replacement
 - referrals to supervisor
 - review of products or services
 - external agencies (eg Ombudsman)
-
- damaged goods or goods not delivered
 - administrative errors such as incorrect invoices or prices
 - warehouse or store room errors such as incorrect product delivered
 - service errors
 - delivery errors
 - products not delivered on time
 - customer satisfaction with service quality
-
- providing feedback to another team member
 - fair and ethical practice
 - non-discriminatory processes and activities
 - respecting the contribution of all participants and giving credit for achievements
 - presenting and promoting a positive image of the collective group
 - problem solving
 - providing encouragement
-
- delivery times
 - price offers
 - product/service availability
 - product/refund guarantees
 - merchandise characteristics
 - courtesy/politeness

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, underpinning knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Range Statement.

Critical Aspects of Evidence

- Identifying needs and priorities of the organisation in delivering services to customers
- Distinguishing between different levels of customer satisfaction
- Providing constructive advice on customer service practices
- Responding to and reporting on customer feedback
- Designing strategies to improve delivery of products and services

***Underpinning Knowledge**
***At this level the learner must demonstrate understanding of a broad knowledge base incorporating some theoretical concepts.**

- The relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- Understanding the principles of customer services
- Understanding the organisation's business structure, products and services
- Understanding the organisation's policy and procedures for customer service including handling customer complaints
- Knowledge of product and service standards and best practice models
- Knowledge of common problems relating to customer service
- Understanding consultation methods, techniques and protocols
- Knowledge of techniques for dealing with customers with special needs

Underpinning Skills

- Planning skills to develop implementation schedules
- Evaluation skills to assess effectiveness of customer service strategies
- Literacy skills to interpret a variety of texts; prepare information and papers; write formal and informal letters according to target audience
- Interpersonal skills to relate effectively to people from a range of social, cultural and ethnic backgrounds
- Technology skills including the ability to select and use technology appropriate to a task
- Problem solving skills to diagnose organisational problems relating to customer services
- Report writing skills to provide recommendations for the enhancement of products or services
- Ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities

Resource implications

The learner and trainer should have access to appropriate documentation and resources normally used in the workplace

Consistency of Performance

In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations

Context/s of Assessment

- Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement
- Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package
- Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment
- Assessment should reinforce the integration of the key competencies and the Business Services Common Competencies for the particular AQF Level. Refer to the Key Competency Levels

BSBCMN412A

Unit Descriptor

Promote innovation and change

This unit covers the skills and knowledge required to promote the use and implementation of innovative work practices to effect change.

This unit is related to BSBCMN312A Support innovation and change.

Competency Field

Common

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Identify and develop opportunities for improved work practices | <ul style="list-style-type: none"> 1.1 Options for change incorporate identified improvements to work practices and procedures 1.2 <i>Risk factors</i> affecting change are analysed to identify potential constraints 1.3 Change is planned and resourced to promote the introduction and management of new processes 1.4 Benefits of <i>change</i> are clear and consistent with <i>organisational requirements</i> 1.5 Timelines and targets for implementation are realistic and support the achievement of change |
| 2. Lead team to foster innovative work practices | <ul style="list-style-type: none"> 2.1 Team members are selected to maximise innovative opportunities 2.2 Work assignments are organised to facilitate <i>innovative work skills</i> 2.3 Team members are provided with guidance and coaching on innovation in the workplace 2.4 Models of innovative work practice are provided and discussed |
| 3. Facilitate commitment to workplace change | <ul style="list-style-type: none"> 3.1 Opinions and suggestions on improving work practices are encouraged to facilitate participation in change processes 3.2 Goals and objectives of change are communicated clearly and promptly to individuals and teams 3.3 <i>Business technology</i> is used to manage and provide access to information on progress towards objectives of change 3.4 <i>Mentoring and coaching</i> is provided to support individuals and groups in introduction of change 3.5 Decisions to overcome problems in the implementation of change are made in consultation with designated individuals and groups 3.6 Effective relations and communications are maintained with clients and stakeholders during the process of change |

- 4. Monitor and evaluate change
 - 4.1 Organisation's systems and technology are used to *monitor progress* towards objectives
 - 4.2 Team members are actively encouraged to reflect on team activities and opportunities for improvement and innovation
 - 4.3 Team activities are evaluated based on feedback from team members, management, clients and other interested people
 - 4.4 Suggestions for work improvements made by team members are positively received and acted on where appropriate
 - 4.5 *Evidence and information* on the impact of change is accurate, relevant and reported within organisational requirements
 - 4.6 Recommendations for improving methods or techniques to manage change are negotiated with designated individuals and groups using appropriate *negotiation skills*
 - 4.7 Systems, records and reporting procedures are maintained according to organisational requirements
 - 4.8 Feedback on individual and group work practices is prompt and constructive

KEY COMPETENCIES

NB:These levels do not relate to the Australian Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	with members of the work team	2
Collecting analysing and organising information	to set goals and objectives	2
Planning and organising activities	to promote change	2
Working with others and in teams	in completing scheduled tasks	2
Using mathematical ideas and techniques	as an aid to measure impact of change	2
Solving problems	to diagnose problems of implementation	2
Using technology	to manage scheduling of tasks	2

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- relevant industry codes of practice

- implementation of new work practices and/or services
- organisational restructures
- introduction of new technology
- change in work location
- new client base
- staffing changes
- job role changes
- work priorities

- the skills required to come up with and develop new ideas or the new use of an old idea. They include:
 - interpretation
 - conceptualisation
 - representation
 - reflection
 - evaluation

- quality assurances and/or procedures manuals
- goals, objectives, plans, systems and processes
- legal and organisational policy/guidelines and requirements
- Occupational Health and Safety policies, procedures and programs
- business and performance plans
- anti-discrimination and related policy
- access and equity principles and practice
- ethical standards
- quality and continuous improvement processes and standards
- defined resource parameters
- consultation and communication processes

- disturbances to workflow
 - confusion/loss of confidence
 - cost blow out
 - supplier problems
 - product/service delivery problems
 - time delays
-
- computer
 - internet/extranet/intranet
 - email
 - software
 - answering machine
 - fax machine
 - telephone
-
- providing feedback to another team member
 - fair and ethical practice
 - non-discriminatory processes and activities
 - respecting the contribution of all participants and giving credit for achievements
 - presenting and promoting a positive image of the collective group
 - problem solving
 - providing encouragement
-
- weekly report
 - monthly report
 - consultative groups
 - Occupational Health and Safety
 - union delegates
 - financial departments
 - public profiles
-
- customer surveys
 - employee satisfaction
 - industrial disputes
 - supplier feedback
 - productivity measures
 - cost savings
 - marketshare data
-
- assertiveness
 - collaboration
 - solution designing
 - confidence building
 - conflict reduction
 - stress management
 - empathising

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, underpinning knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range Statement.

Critical Aspects of Evidence

- Analysing and evaluating problems associated with change
- Developing processes to introduce change
- Establishing plans and schedules to achieve the objectives of change
- Presenting information on the causes and introduction of the change
- Communicating priorities, goals and objectives
- Gathering evidence on the effect of change

Underpinning Knowledge

- The relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- Understanding of common effects of change and innovation in the workplace
- Understanding of industrial and organisational context of change
- Understanding of organisation's policies, plans, procedures and structure
- Knowledge of resources required by the organisation's operations
- Understanding processes to interpret and apply feedback
- Knowledge of principles and techniques of goal setting and recording priorities
- Knowledge of the principles of negotiation

At this level the learner must demonstrate understanding of a broad knowledge base incorporating some theoretical concepts.

Underpinning Skills

- Literacy skills to read and understand a variety of texts; prepare general information and papers according to target audience; spell with accuracy; use grammar and punctuation effectively as an aid to understanding
- Planning skills to schedule work activities for the implementation of change
- Team work skills for working as a member of a team during period of changes
- Consultation skills for including stakeholders in the change process
- Analytical skills for monitoring outcomes of change
- Negotiation skills for dealing with competing objectives
- Estimation skills for identifying resources necessary to support introduction of change
- Ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities

Resource Implications

The learner and trainer should have access to appropriate documentation and resources normally used in the workplace

Consistency of Performance

In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations

Context/s of Assessment

- Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement
- Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package
- Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment
- Assessment should reinforce the integration of the key competencies and the Business Services Common Competencies for the particular AQF Level. Refer to the Key Competency Levels

BSBFLM402A

Unit Descriptor

Show leadership in the workplace

This unit is equivalent to the original unit BSXFMI402A Provide leadership in the workplace.

Frontline management has an important leadership role in the development of the organisation. This will be evident in the way they work with teams and individuals, their standard of conduct and the initiative they take in influencing others. At this level, work will normally be carried out within routine and non-routine methods and procedures which require the exercise of some discretion and judgement.

Consider co-assessment with BSBCM402A Develop work priorities, BSBFLM403A Manage effective workplace relationships, BSBFLM404A Lead work teams, and BSBFLM406A Implement workplace information system.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Model high standards of management performance and behaviour | 1.1 Management performance and behaviour meets the <i>organisation's requirements</i>
1.2 Management performance and behaviour serves as a positive role model for others
1.3 Performance plans are developed and implemented in accordance with the organisation's goals and objectives
1.4 Key performance indicators are established and used to meet the organisation's goals and objectives |
| 2. Enhance the organisation's image | 2.1 The organisation's <i>standards and values</i> are used in conducting business
2.2 Standards and values considered to be damaging to the organisation are questioned through established communication channels
2.3 Personal performance contributes to developing an organisation which has integrity and credibility |
| 3. Influence individuals and teams positively | 3.1 Expectations, roles and responsibilities are communicated in a way which encourages individuals/teams to take responsibility for their work
3.2 Individual's/team's efforts and contributions are encouraged, valued and rewarded
3.3 Ideas and information receive the acceptance and <i>support of colleagues</i> |

- 4. Make informed decisions
 - 4.1 Information relevant to the issue(s) under consideration is gathered and organised
 - 4.2 Individuals/teams participate actively in the decision making processes
 - 4.3 Options are examined and their associated risks assessed to determine preferred course(s) of action
 - 4.4 Decisions are timely and communicated clearly to individuals/teams
 - 4.5 Plans to implement decisions are prepared and agreed by relevant individuals/teams
 - 4.6 *Feedback processes* are used effectively to monitor the implementation and impact of decisions

KEY COMPETENCIES

These levels do not relate to the Australian Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	with individuals and members of work team	2
Collecting analysing and organising information	to develop Key Performance Indicators	2
Planning and organising activities	to establish work plans	2
Working with others and in teams	to implement and monitor performance	2
Using mathematical ideas and techniques	as an aid to measure and plan goals	1
Solving problems	as part of the decision making processes	2
Using technology	to aid effective management of information	1

Please refer to the Assessment Guidelines for advice on how to use the Key Competencies

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competence, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

- Award and enterprise agreements and relevant industrial instruments
- Relevant legislation from all levels of government that affects business operation, especially in regard to OHS and environmental issues, equal opportunity, industrial relations and anti-discrimination
- Relevant industry codes of practice

- Engage in short to medium term planning within the organisation's business plans. For example, prepares six monthly plan of the department's productivity targets within the organisation's business plans
 - Take responsibility for own outputs in relation to specific quality standards. For example, assesses own management performance against the organisation's standards of management
 - Take limited responsibility for the quality and quantity of the output of others. For example, using the organisation's performance improvement processes, assists individuals to assess the quality and quantity of their output and to devise appropriate improvement plans
 - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts. For example, understands the principles and techniques underpinning the development of key performance indicators
 - Perform varied activities in a wide range of routine and/or non-routine contexts, with knowledge and skill depth in some areas. For example, negotiates the services to be provided to an external customer who has needs which are not able to be met within the organisation's standard range of services
 - Apply solutions to a defined range of unpredictable problems. For example, given the failure of a supplier to provide urgently required computer software, analyses the options and takes appropriate action for a prompt and cost-effective rectification of the problem
 - Identify, analyse and evaluate information from a variety of sources. For example, given feedback from several employees as to ways to up-grade the department's operating procedures and given the organisation's standard documentation, considers the information provided and prepares a recommendation for consultation
-
- Goals, objectives, plans, systems and processes
 - Quality and continuous improvement processes and standards
 - Access and equity principles and practice
 - Business and performance plans
 - Defined resource parameters
 - Ethical standards
-
- Expressed in written documentation and orally. They will normally be expressed in terms of goals, plans, processes and procedures. The requirements also include the culture and standards demonstrated by the organisation
-
- Stated or implied by the way the organisation conducts its business

- Team members, employees at the same level and more senior managers, and may include people from a wide variety of social, cultural and ethnic backgrounds. This will usually be from a wider spread of the organisation than at AQF level 3
- Formal or informal and may be from internal or external sources
- Implement and monitor OHS procedures in area of responsibility
- Leadership in OHS practice as an ethical standard
- OHS hazard identification, risk assessment and control approaches evident in decisions

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, underpinning knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range Statement.

Critical aspects of assessment:

- Displays high standards of leadership
- Demonstrates a positive influence on others
- Uses effective consultation processes
- Makes soundly researched decisions

Underpinning knowledge: At this level the learner must demonstrate understanding of a broad knowledge base incorporating some theoretical concepts.

Underpinning knowledge relates to the essential knowledge and understanding a person needs to perform work to the required standard

- Relevant legislation from all levels of government that affects business operation, especially in regard to OHS and environmental issues, equal opportunity, industrial relations and anti-discrimination

The principles and techniques associated with:

- Leading people
- Preparing performance plans
- Establishing key performance indicators
- Influencing others
- Establishing effective consultative processes
- Making decisions
- The characteristics of a positive role model
- The types of actions which uphold the organisation's image

Underpinning skills:

- Functional literacy skills to use written and oral information about workplace requirements
- Communication skills including receiving and analysing feedback and reporting
- Accessing and interpreting the organisation's standards and values
- Research and analytical skills to interpret data
- Planning and organising skills to meet work priorities
- Monitoring and introducing practices to improve work performance
- Being a positive influence on colleagues
- Using information systems to advantage
- Using feedback to achieve positive outcomes
- Use coaching and mentoring skills to provide support to colleagues
- Ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities

Resource implications:

The learner and trainer should have access to appropriate documentation and resources normally used in the workplace

Consistency of performance:

In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations

Context/s of assessment:

- Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement
- Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package
- Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment
- Assessment should reinforce the integration of the key competencies and the business services common competencies for the particular AQF level. Refer to the Key Competencies Levels at the end of this unit

BSBFLM403A

Unit Descriptor

Manage effective workplace relationships

This unit is equivalent to the original unit BSXFMI403A Establish and manage effective workplace relationships.

Frontline management plays an important role in developing and maintaining positive relationships in internal and external environments so that customers, suppliers and the organisation achieve planned outputs / outcomes. At this level, work will normally be carried out within routine and non-routine methods and procedures which require the exercise of some discretion and judgement.

Consider co-assessment with BSBFLM402A Show leadership in the workplace and BSBFLM404A Lead work teams.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Gather, convey and receive information and ideas | <ul style="list-style-type: none"> 1.1 Information to achieve work responsibilities is collected from appropriate sources 1.2 The method(s) used to communicate ideas and information is appropriate to the audience 1.3 Communication takes into account social and cultural diversity 1.4 Input from internal and external sources is sought, and valued in developing and refining new ideas and approaches |
| 2. Develop trust and confidence | <ul style="list-style-type: none"> 2.1 People are treated with integrity, respect and empathy 2.2 The organisation's social, ethical and business standards are used to develop and maintain positive relationships 2.3 Trust and confidence of colleagues, customers and suppliers is gained and maintained through competent performance 2.4 Interpersonal styles and methods are adjusted to the social and cultural environment |
| 3. Build and maintain networks and relationships | <ul style="list-style-type: none"> 3.1 Networking is used to identify and build relationships 3.2 Networks and other work relationships provide identifiable benefits for the team and organisation 3.3 Action is taken to maintain the effectiveness of workplace relationships |
| 4. Manage difficulties to achieve positive outcomes | <ul style="list-style-type: none"> 4.1 Problems are identified and analysed, and action is taken to rectify the situation with minimal disruption to performance 4.2 Colleagues receive guidance and support to resolve their work difficulties 4.3 Poor work performance is managed within the organisation's processes 4.4 Conflict is managed constructively within the organisation's processes 4.5 Difficult situations are negotiated to achieve results acceptable to the participants, and which meet organisation's and legislative requirements |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competence, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The general workplace context for this AQF level is described in the AQF level descriptor. In addition, the following variables may be present for this particular unit:

- Award and enterprise agreements and relevant industrial instruments
- Relevant legislation from all levels of government that affects business operation, especially in regard to occupational health and safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- Relevant industry codes of practice

- Engage in short to medium term planning within the organisation's business plans. For example, prepares six monthly plan of the department's productivity targets within the organisation's business plans
 - Take responsibility for own outputs in relation to specific quality standards. For example, assesses own management performance against the organisation's standards of management
 - Take limited responsibility for the quality and quantity of the output of others. For example, using the organisation's performance improvement processes, assists individuals to assess the quality and quantity of their output and to devise appropriate improvement plans
 - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts. For example, understands the principles and techniques underpinning the development of key performance indicators
 - Perform varied activities in a wide range of routine and / or non-routine contexts, with knowledge and skill depth in some areas. For example, negotiates the services to be provided to an external customer who has needs which are not able to be met within the organisation's standard range of services
 - Apply solutions to a defined range of unpredictable problems. For example, given the failure of a supplier to provide urgently required computer software, analyses the options and takes appropriate action for a prompt and cost-effective rectification of the problem
 - Identify, analyse and evaluate information from a variety of sources. For example, given feedback from several employees as to ways to up-grade the department's operating procedures and given the organisation's standard documentation, considers the information provided and prepares a recommendation for consultation
-
- Goals, objectives, plans, systems and processes
 - Quality and continuous improvement processes and standards
 - Access and equity principles and practice
 - Business and performance plans
 - Defined resource parameters
 - Ethical standards
-
- Internal or external and print or non-print
-
- Those relevant to frontline management's work activities. They may be written or oral, stated or implied

- Team members, employees at the same level and more senior managers, and may include people from a wide variety of social, cultural and ethnic backgrounds. This will usually be from a wider spread of the organisation than at AQF level 3
- Internal sources, although there may be some limited external contact
- internal and / or external. They may be with individuals or groups, either through established structures or through unstructured arrangements
- Provided by frontline management or arranged from alternative internal or external sources
- OHS practice as an ethical standard and legislative requirement
- Organisation's responsibilities to customers and suppliers
- Adjust communication and OHS approach to cater for social and cultural diversity

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range Statement.

Critical Aspects of Evidence

Assessment requires evidence of the following products to be collected:

- Establishes and maintains positive work relationships
- Develops trust and confidence
- Accesses and analyses information to achieve planned outcomes
- Resolves problems and conflicts effectively and efficiently

Underpinning Knowledge

Underpinning knowledge relates to the essential knowledge and understanding a person needs to perform work to the required standard

Underpinning knowledge relates to the essential knowledge and understanding a person needs to perform work to the required standard

Relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination

At this level the learner must demonstrate some relevant theoretical knowledge.

The principles and techniques associated with:

- Developing trust and confidence
- consistent behaviour in work relationships
- identifying the cultural and social environment
- identifying and assessing interpersonal styles
- establishing networks
- problem identification and resolution
- handling conflict
- managing poor work performance

Managing relationships to achieve planning responsibilities

Monitoring and introducing ways to improve work relationships

Contributing to the elimination of discrimination / bias

Functional literacy skills to access and use workplace information

Communication skills including researching, analysing and interpreting information from a variety of people, reporting

Responding to unexpected demands from a range of people

Using consultative processes effectively

Forging effective relationships with internal and / or external people

Gaining the trust and confidence of colleagues

Dealing with people openly and fairly

Using coaching and mentoring skills to provide support to colleagues

Ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities

Resource Implications

The learner and trainer should have access to appropriate documentation and resources normally used in the workplace

Consistency of Performance

In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations

Context/s of Assessment

Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement

Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package

Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment

Assessment should reinforce the integration of the key competencies and the business services common competencies for the particular AQF level. Refer to the Key Competencies Levels at the end of this unit

BSBFLM404A

Unit Descriptor

Lead work teams

This unit is equivalent to the original unit BSXFMI404A Participate in, lead and facilitate work teams.

This unit covers the skills and knowledge required to lead a team or work group in a business environment. It includes developing plans, providing leadership and supervising the performance of a group.

This unit is related to BSBCM301A Exercise initiative in a business environment. Consider co-assessment with BSBFLM402A Show leadership in the workplace, BSBFLM403A Manage effective workplace relationships, BSBFLM406A Implement workplace information system, and BSBFLM411A Contribute to the development of a workplace learning environment.

Unit Sector

Business Management Services

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Participate in team planning | <ul style="list-style-type: none"> 1.1 The <i>manager</i> assists the <i>team</i> establish its purpose, roles, responsibilities and accountabilities in accordance with the <i>organisation's goals, plans and objectives</i> 1.2 The manager assists the team monitor and adjust its performance within the organisation's continuous improvement policies and processes 1.3 The manager encourages the team to use the <i>competencies</i> of each member for team and individual benefit |
| 2. Develop team commitment and co-operation | <ul style="list-style-type: none"> 2.1 The manager assists the team to use open communication processes to obtain and share information 2.2 The team makes decisions in accordance with its agreed roles and responsibilities 2.3 The manager supports the team to develop mutual concern and camaraderie |
| 3. Manage and develop team performance | <ul style="list-style-type: none"> 3.1 The results achieved by the team contribute positively to the organisation's business plans 3.2 The manager encourages the team to exploit innovation and initiative 3.3 Team and individual competencies are monitored regularly to confirm that the team is able to achieve its goals 3.4 Team members share and enhance their <i>knowledge and skills</i> |
| 4. Participate in and facilitate the work team | <ul style="list-style-type: none"> 4.1 Team members participate actively in team activities and communication processes 4.2 Individuals and teams take individual and joint responsibility for their actions 4.3 The team receives support to identify and resolve problems which impede its performance |

KEY COMPETENCIES

NB: These levels do not relate to the Australian Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	to assist team planning	2
Collecting analysing and organising information	with members of work team	2
Planning and organising activities	in association with team	3
Working with others and in teams	to achieve team goals	2
Using mathematical ideas and techniques	to assist the development of team plans	1
Solving problems	to assist team performance	3
Using technology	to assist the management of information	1

Three levels of performance denote level of competency required to perform a task.

1. Perform
2. Administer
3. Design

Please refer to the Assessment Guidelines for advice on how to use the Key Competencies

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competence, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- relevant industry codes of practice

- engage in short to medium term planning within the organisation's business plans. For example, prepares six monthly plan of the department's productivity targets within the organisation's business plans
 - take responsibility for own outputs in relation to specific quality standards. For example, assesses own management performance against the organisation's standards of management
 - take limited responsibility for the quality and quantity of the output of others. For example, using the organisation's performance improvement processes, assists individuals to assess the quality and quantity of their output and to devise appropriate improvement plans
 - demonstrate understanding of a broad knowledge base incorporating some theoretical concepts. For example, understands the principles and techniques underpinning the development of Key Performance indicators
 - perform varied activities in a wide range of routine and/or non-routine contexts, with knowledge and skill depth in some areas. For example, negotiates the services to be provided to an external customer who has needs which are not able to be met within the organisation's standard range of services
 - apply solutions to a defined range of unpredictable problems. For example, given the failure of a supplier to provide urgently required computer software, analyses the options and takes appropriate action for a prompt and cost-effective rectification of the problem
 - identify, analyse and evaluate information from a variety of sources. For example, given feedback from several employees as to ways to up-grade the department's operating procedures and given the organisation's standard documentation, considers the information provided and prepares a recommendation for consultation
-
- goals, objectives, plans, systems and processes
 - quality and continuous improvement processes and standards
 - access and equity principles and practice
 - business and performance plans
 - defined resource parameters
 - ethical standards
-
- adopt a variety of roles in teams including leader, facilitator, participant, coach, mentor
-
- one or a mixture of on-going, work-based, project-based, task specific, or cross-functional. Teams may include full time employees, contractors, part time employees

- those relevant to frontline management's work activities and to the teams in which frontline management is involved
- the abilities of the team members and may be formally recognised or not formally recognised. They may be industry-wide, enterprise specific or individual specific
- take place through a variety of methods including for example, coaching, mentoring, exchange/rotation, shadowing, action learning, structured training programs
- implement and monitor participative arrangements
- information to team about OHS and the organisation's OHS policies, procedures and practices

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, underpinning knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range Statement.

Critical Aspects of Evidence

- Provides leadership to team
- Contributes positively to team performance
- Provides coaching and mentoring support

Underpinning Knowledge

- Underpinning knowledge relates to the essential knowledge and understanding a person needs to perform work to the required standard
- Relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- The principles and techniques associated with:
 - the organisation of teams
 - team goal setting
 - devolving responsibility/accountability to teams
 - team dynamics
 - conflict resolution
 - gaining team commitment
 - monitoring and assessing team performance
- Gain team commitment to the organisation's goals, values and plans
- The forms of bias/discrimination and how to deal with them

At this level the learner must demonstrate understanding of a broad knowledge base incorporating some theoretical concepts.

Underpinning Skills

- Functional literacy skills to access and use workplace information
- Assessing the competence of the team
- Facilitating the participation of team members
- Working effectively with team members who have diverse work styles, aspirations, cultures and perspectives
- Facilitating team development and improvement
- Assessing competency development requirements
- Gaining the trust and confidence of colleagues
- Dealing with people openly and fairly
- Using coaching and mentoring skills to provide support to colleagues
- Ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities

Resource Implications

- The learner and trainer should have access to appropriate documentation and resources normally used in the workplace

Consistency of Performance

- In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations

Context/s of Assessment

- Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement
- Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package
- Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment
- Assessment should reinforce the integration of the key competencies and the business services common competencies for the particular AQF level. Refer to the Key Competencies Levels at the end of this unit

BSBFLM405A

Unit Descriptor

Implement operational plan

This unit is equivalent to the original unit BSXFMI405A Manage operations to achieve planned outcomes.

Frontline management is actively engaged in planning, implementing, monitoring and recording performance to achieve the business plans of the team/organisation. This key role is carried out to provide safe, efficient and effective products and services to customer satisfaction within the organisation's productivity and profitability plans. At this level, work will normally be carried out within routine and non-routine methods and procedures which require the exercise of some discretion and judgement.

Consider co-assessment with BSBFLM402A Show leadership in the workplace, BSBFLM403A Manage effective workplace relationships, BSBFLM404A Lead work teams, BSBFLM406A Implement workplace information system, BSBCM411A Monitor a safe workplace, and BSBFLM409A Implement continuous improvement.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|------------------------------------|---|
| 1. Plan resource use | <ul style="list-style-type: none"> 1.1 <i>Resource</i> information for use in <i>operational plans</i> is collected, analysed and organised in consultation with <i>colleagues and specialist resource managers</i> 1.2 Operational plans contribute to the achievement of the organisation's performance/business plan 1.3 Key performance indicators are developed within operational plans 1.4 Contingency plans are prepared in the event that initial plans need to be varied |
| 2. Acquire resources | <ul style="list-style-type: none"> 2.1 Employees are recruited and/or inducted within the organisation's human resource management policies and practices 2.2 Physical resources and services are acquired within the <i>organisation's polices, practices and procedures</i> |
| 3. Monitor operational performance | <ul style="list-style-type: none"> 3.1 Performance systems and processes are monitored to assess progress in achieving profit/productivity plans and targets 3.2 Budget and actual financial information is analysed and interpreted to monitor profit/productivity performance 3.3 Unsatisfactory performance is identified and prompt action is taken to rectify the situation 3.4 Mentoring and coaching is provided to support individuals/teams use resources to the required standard 3.5 Recommendations for variation to operational plans are negotiated and approved by the <i>designated persons/groups</i> 3.6 Systems, procedures and records associated with documenting performance are managed in accordance with the organisation's requirements |

KEY COMPETENCIES

NB: These levels do not relate to the Australian Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	to share information with members of work team	2
Collecting analysing and organising information	to acquire information for planning	2
Planning and organising activities	to plan resource usage	2
Working with others and in teams	to achieve planning outcomes	2
Using mathematical ideas and techniques	to carry out calculations associated with resource usage	1
Solving problems	to attend to unsatisfactory performance	2
Using technology	to assist the management of information	2

Three levels of performance denote level of competency required to perform a task.

1. Perform 2. Administer 3. Design

Please refer to the Assessment Guidelines for advice on how to use the Key Competencies

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competence, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- relevant industry codes of practice

- engage in short to medium term planning within the organisation's business plans. For example, prepares six monthly plan of the department's productivity targets within the organisation's business plans
 - take responsibility for own outputs in relation to specific quality standards. For example, assesses own management performance against the organisation's standards of management
 - take limited responsibility for the quality and quantity of the output of others. For example, using the organisation's performance improvement processes, assists individuals to assess the quality and quantity of their output and to devise appropriate improvement plans
 - demonstrate understanding of a broad knowledge base incorporating some theoretical concepts. For example, understands the principles and techniques underpinning the development of Key Performance indicators
 - perform varied activities in a wide range of routine and/or non-routine contexts, with knowledge and skill depth in some areas. For example, negotiates the services to be provided to an external customer who has needs which are not able to be met within the organisation's standard range of services
 - apply solutions to a defined range of unpredictable problems. For example, given the failure of a supplier to provide urgently required computer software, analyses the options and takes appropriate action for a prompt and cost-effective rectification of the problem
 - identify, analyse and evaluate information from a variety of sources. For example, given feedback from several employees as to ways to up-grade the department's operating procedures and given the organisation's standard documentation, considers the information provided and prepares a recommendation for consultation
-
- goals, objectives, plans, systems and processes
 - quality and continuous improvement processes and standards
 - access and equity principles and practice
 - business and performance plans
 - defined resource parameters
 - ethical standards
-
- people, power/energy, information, finance, buildings/facilities, equipment, technology, time
-
- the short to medium term plans developed by the department/section to describe product/service performance

- those which govern the acquisition of resources, for example, the purchase of equipment
- people at the same level or more senior managers, and may include people from a wide range of social, cultural and ethnic backgrounds. This will usually be from a wider spread of the organisation than at AQF level 3
- those who have the authority to make decisions and/or recommendations about varying operations
- provision of information about OHS and the organisation's OHS policies, procedures and programs
- employee induction
- key performance indicators include OHS
- systems, procedures and records
- organisation's procedures for dealing with hazardous events

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, underpinning knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range Statement.

Critical Aspects of Evidence

- Produces short term plans for department/section
- Plans, acquires and uses resources
- Monitors and adjusts operational performance
- Reports performance

Underpinning Knowledge

- Underpinning knowledge relates to the essential knowledge and understanding a person needs to perform work to the required standard

At this level the learner must demonstrate understanding of a broad knowledge base incorporating some theoretical concepts.

Underpinning Skills

- Functional literacy skills to access and use workplace information
- Maintaining a safe workplace and environment
- Accessing and using feedback to improve operational performance
- Preparing recommendations to improve operations
- Accessing and using established systems and processes
- Using coaching and mentoring skills to provide support to colleagues
- Ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities

Resource Implications

- The learner and trainer should have access to appropriate documentation and resources normally used in the workplace

Consistency of Performance

- In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations

Context/s of Assessment

- Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement
- Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package
- Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment
- Assessment should reinforce the integration of the key competencies and the business services common competencies for the particular AQF level. Refer to the Key Competencies Levels at the end of this unit

BSBFLM406A

Unit Descriptor

Implement workplace information system

This unit is equivalent to the original unit BSXFMI406A Manage workplace information.

Frontline management is an important contributor and user of information. Their competency in identifying, acquiring, analysing and using appropriate information plays a significant part in the effectiveness of the organisation's performance. At this level, work will normally be carried out within routine and non-routine methods and procedures which require the exercise of some discretion and judgement.

Consider co-assessment with BSBFLM402A Show leadership in the workplace, BSBFLM405A Implement operational plan, BSBFLM409A Implement continuous improvement, BSBCM410A Coordinate implementation of customer service strategies and BSBCM411 Monitor a safe workplace.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Identify and source information needs | <ul style="list-style-type: none"> 1.1 The <i>information</i> needs of teams is determined and the sources are identified 1.2 Information held by the organisation is acquired and reviewed to determine suitability and accessibility 1.3 Plans are prepared to obtain information which is not available/accessible within the organisation 1.4 The <i>information</i> needs of teams is determined and the sources are identified |
| 2. Collect, analyse and report information | <ul style="list-style-type: none"> 2.1 Collection of information is timely and relevant to the needs of teams 2.2 Information is in a format suitable for analysis, interpretation and dissemination 2.3 Information is analysed to identify and report relevant trends and developments in terms of the needs for which it was acquired |
| 3. Use management information systems | <ul style="list-style-type: none"> 3.1 Management information systems are used effectively to store and retrieve data for decision making 3.2 <i>Technology</i> available in the work area is used to manage information effectively 3.3 Recommendations for improving the information system are submitted to <i>designated persons/groups</i> |
| 4. Prepare business plan/budgets | <ul style="list-style-type: none"> 4.1 Teams are involved in business plans and/or budget preparation in a way which uses their contribution effectively and gains their support for the outcomes 4.2 Business plans and/or budgets are prepared and presented in accordance with the organisation's guidelines and requirements 4.3 Contingency plans are prepared in the event that alternative action is required |

BSBFLM406A Implement workplace information system

- 5. Prepare resource proposals
 - 5.1 *Resource* planning data is collected in consultation with *colleagues*, including those who have a specialist role in resource management
 - 5.2 Estimates of resource needs and use reflects the organisation's business plans, and customer and supplier requirements
 - 5.3 Proposals to secure resources are supported by clearly presented submissions describing realistic options, benefits, costs and outcomes

KEY COMPETENCIES

NB:These levels do not relate to the Australian Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	with individuals and members of work team	2
Collecting analysing and organising information	to contribute to the team's information needs	2
Planning and organising activities	use of the management information system	2
Working with others and in teams	to collect and prepare budget information	2
Using mathematical ideas and techniques	to make budget calculations	1
Solving problems	to access information not available in the organisation	2
Using technology	to assist the management of information	1

Three levels of performance denote level of competency required to perform a task.

- 1. Perform
- 2. Administer
- 3. Design

Please refer to the Assessment Guidelines for advice on how to use the Key Competencies

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competence, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- relevant industry codes of practice

- engage in short to medium term planning within the organisation's business plans. For example, prepares six monthly plan of the department's productivity targets within the organisation's business plans
 - take responsibility for own outputs in relation to specific quality standards. For example, assesses own management performance against the organisation's standards of management
 - take limited responsibility for the quality and quantity of the output of others. For example, using the organisation's performance improvement processes, assists individuals to assess the quality and quantity of their output and to devise appropriate improvement plans
 - demonstrate understanding of a broad knowledge base incorporating some theoretical concepts. For example, understands the principles and techniques underpinning the development of Key Performance indicators
 - perform varied activities in a wide range of routine and/or non-routine contexts, with knowledge and skill depth in some areas. For example, negotiates the services to be provided to an external customer who has needs which are not able to be met within the organisation's standard range of services
 - apply solutions to a defined range of unpredictable problems. For example, given the failure of a supplier to provide urgently required computer software, analyses the options and takes appropriate action for a prompt and cost-effective rectification of the problem
 - identify, analyse and evaluate information from a variety of sources. For example, given feedback from several employees as to ways to up-grade the department's operating procedures and given the organisation's standard documentation, considers the information provided and prepares a recommendation for consultation
-
- goals, objectives, plans, systems and processes
 - quality and continuous improvement processes and standards
 - access and equity principles and practice
 - business and performance plans
 - defined resource parameters
 - ethical standards
-
- available in writing or verbally, held in computer or in manual systems, available internally or externally
-
- that readily available in the workplace and be appropriate to frontline management's roles and responsibilities

- those who have the authority to make decisions and/or recommendations about information systems
- for example, people, power/energy, information, finance, buildings/facilities, equipment, technology, time
- team members, employees at the same level or more senior managers, and may include people from a wide variety of social, cultural and ethnic backgrounds. This will normally be a wider group of contacts than at AQF level 3
- provision of information about OHS and the organisation's OHS policies, procedures and programs
- inclusion of OHS in business plans
- resource proposals address OHS

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, underpinning knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range Statement.

Critical Aspects of Evidence

- Accesses, uses and communicates workplace information
- Provides feedback on how to improve the management information system
- Researches and prepares financial and resource plans/proposals

Underpinning Knowledge

- Functional literacy skills to access and use workplace information
- Communication skills including information collection, analysis and interpretation and reporting
- Identifying information requirements of the team
- Managing information to achieve goals and results
- Researching information
- Improving information usage in decision making
- Preparing information in a format for use by colleagues
- Using coaching and mentoring skills to provide support to colleagues
- Accessing technology to extract/input information
- Ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities

Underpinning Skills

- The learner and trainer should have access to appropriate documentation and resources normally used in the workplace

Resource Implications

- In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations

Consistency of Performance

- Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement
- Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package
- Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment
- Assessment should reinforce the integration of the key competencies and the business services common competencies for the particular AQF level. Refer to the Key Competencies Levels at the end of this unit

Context/s of Assessment

- Functional literacy skills to access and use workplace information
- Communication skills including information collection, analysis and interpretation and reporting
- Identifying information requirements of the team
- Managing information to achieve goals and results
- Researching information
- Improving information usage in decision making
- Preparing information in a format for use by colleagues
- Using coaching and mentoring skills to provide support to colleagues
- Accessing technology to extract/input information
- Ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities

BSBFLM409A

Unit Descriptor

Implement continuous improvement

This unit is equivalent to the original unit BSXFMI409A Implement and monitor continuous improvement systems and processes.

Frontline management has an active role in managing the continuous improvement process in achieving the organisation's objectives. Their position, closely associated with the creation and delivery of products and services, means that they play an important part in influencing the on-going development of the organisation. At this level, work will normally be carried out within routine and non-routine methods and procedures which require the exercise of some discretion and judgement.

Consider co-assessment with BSBFLM402A Show leadership in the workplace, BSBFLM404A Lead work teams, BSBFLM405A Implement operational plan, BSBFLM407A Supervise quality customer service, BSBCMN411A Monitor a safe workplace, BSBCMN412A Promote innovation and change.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Implement continuous improvement systems and processes | 1.1 The manager actively encourages and supports team members to participate in decision making processes and to assume responsibility and authority
1.2 The organisation's continuous improvement processes are communicated to individuals/teams
1.3 The manager's mentoring and coaching support ensures that individuals/teams are able to implement the organisation's continuous improvement processes |
| 2. Monitor, adjust and report performance | 2.1 The organisation's systems and <i>technology</i> are used to monitor progress and to identify ways in which planning and operations could be improved
2.2 <i>Customer service</i> is strengthened through the use of continuous improvement techniques and processes
2.3 Plans are adjusted and communicated to those who have a role in their development and implementation. |
| 3. Consolidate opportunities for further improvement | 3.1 Team members are informed of savings and productivity/service improvements in achieving the business plan
3.2 Work performance is documented and the information is used to identify opportunities for further improvement
3.3 Records, reports and recommendations for improvement are managed within the organisation's systems and processes |

KEY COMPETENCIES

NB: These levels do not relate to the Australian Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	to be used in continuous improvement processes	2
Collecting analysing and organising information	to individuals and work team about the organisation's continuous improvement processes	2
Planning and organising activities	for arranging continuous improvement program	2
Working with others and in teams	to gain team feedback on further improvement initiatives	2
Using mathematical ideas and techniques	to complete calculations associated with work improvement	1
Solving problems	as an aid to investigating problems with introducing improvements	2
Using technology	to assist the management of information	2

Three levels of performance denote level of competency required to perform a task.

1. Perform
2. Administer
3. Design

Please refer to the Assessment Guidelines for advice on how to use the Key Competencies

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competence, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- relevant industry codes of practice

- engage in short to medium term planning within the organisation's business plans. For example, prepares six monthly plan of the department's productivity targets within the organisation's business plans
 - take responsibility for own outputs in relation to specific quality standards. For example, assesses own management performance against the organisation's standards of management
 - take limited responsibility for the quality and quantity of the output of others. For example, using the organisation's performance improvement processes, assists individuals to assess the quality and quantity of their output and to devise appropriate improvement plans
 - demonstrate understanding of a broad knowledge base incorporating some theoretical concepts. For example, understands the principles and techniques underpinning the development of Key Performance indicators
 - perform varied activities in a wide range of routine and/or non-routine contexts, with knowledge and skill depth in some areas. For example, negotiates the services to be provided to an external customer who has needs which are not able to be met within the organisation's standard range of services
 - apply solutions to a defined range of unpredictable problems. For example, given the failure of a supplier to provide urgently required computer software, analyses the options and takes appropriate action for a prompt and cost-effective rectification of the problem
 - identify, analyse and evaluate information from a variety of sources. For example, given feedback from several employees as to ways to up-grade the department's operating procedures and given the organisation's standard documentation, considers the information provided and prepares a recommendation for consultation
-
- goals, objectives, plans, systems and processes
 - quality and continuous improvement processes and standards
 - access and equity principles and practice
 - business and performance plans
 - defined resource parameters
 - ethical standards
-
- that readily available in the workplace and will be appropriate to frontline management's roles and responsibilities
-
- internal or external, to existing or new clients

- implement and monitor participative arrangements for the management of OHS
- delegation and reporting complies with requirements of OHS legislation
- the continuous improvement processes of any OHS management system are implemented and monitored

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, underpinning knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range Statement.

Critical Aspects of Evidence

- Adjusts plans, processes and procedures to improve performance
- Supports others to implement the continuous improvement system/processes
- Identifies opportunities for further improvement

Underpinning Knowledge

- Underpinning knowledge relates to the essential knowledge and understanding a person needs to perform work to the required standard
- Relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- The principles and techniques associated with:
 - continuous improvement systems and processes
 - benchmarking
 - best practice
 - the benefits of continuous improvement
 - the quality approaches which the organisation may implement
 - the methods that can be used in continuous improvement
 - the barriers to continuous improvement
 - the organisation's recording, reporting and recommendation processes to facilitate continuous improvement

At this level the learner must demonstrate understanding of a broad knowledge base incorporating some theoretical concepts.

Underpinning Skills

- Functional literacy skills to access and use workplace information
- Communication skills including researching, analysing and interpreting information from a variety of people and reporting
- Monitoring and evaluating systems, processes and procedures
- Gaining the commitment of individuals/teams to continuous improvement
- Consolidating opportunities for improvement
- Dealing with people openly and fairly
- Using consultation skills effectively
- Using coaching and mentoring skills to provide support to colleagues
- Ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities

Resource Implications

- The learner and trainer should have access to appropriate documentation and resources normally used in the workplace

Consistency of Performance

- In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations

Context/s of Assessment

- Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement
- Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package
- Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment
- Assessment should reinforce the integration of the key competencies and the business services common competencies for the particular AQF level. Refer to the Key Competencies Levels at the end of this unit

BSBFLM504A

Unit Descriptor

Facilitate work teams

This unit is equivalent to the original unit BSXFMI504A Participate in, lead and facilitate work teams.

Frontline management has a key role in leading, participating in, facilitating and empowering work teams/groups within the context of the organisation. They play a prominent part in motivating, mentoring, coaching and developing team members, and in achieving team cohesion. At this level, work will normally be carried out within complex and diverse methods and procedures which require the exercise of considerable discretion and judgement, using a range of problem solving and decision making strategies.

Consider co-assessment with BSBFLM502A Provide leadership in the workplace, BSBFLM503A Establish effective workplace relationships, BSBFLM506A Manage workplace information system, and BSBFLM511A Develop a workplace learning environment

Unit Sector

Business Management Services

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Participate in team planning | <ul style="list-style-type: none"> 1.1 The manager assists the team establish its purpose, roles, responsibilities and accountabilities in accordance with the organisation's goals, plans and objectives 1.2 The manager assists the team monitor and adjust its performance within the organisation's continuous improvement policies and processes 1.3 The manager encourages the team to use the competencies of each member for team and individual benefit |
| 2. Develop team commitment and co-operation | <ul style="list-style-type: none"> 2.1 The manager assists the team to use open communication processes to obtain and share information 2.2 The team makes decisions in accordance with its agreed roles and responsibilities 2.3 The manager supports the team to develop mutual concern and camaraderie |
| 3. Manage and develop team performance | <ul style="list-style-type: none"> 3.1 The results achieved by the team contribute positively to the organisation's business plans 3.2 The manager encourages the team to exploit innovation and initiative 3.3 Team and individual competencies are monitored regularly to confirm that the team is able to achieve its goals 3.4 Team members share and enhance their knowledge and skills |
| 4. Participate in and facilitate the work team | <ul style="list-style-type: none"> 4.1 Team members participate actively in team activities and communication processes 4.2 Individuals and teams take individual and joint responsibility for their actions 4.3 The team receives support to identify and resolve problems which impede its performance |

KEY COMPETENCIES

Key Competency	Example of Application	Performance Level
Communicating ideas and information	with members of work team	2
Collecting analysing and organising information	to assist team planning	2
Planning and organising activities	in association with team	3
Working with others and in teams	to achieve team goals	3
Using mathematical ideas and techniques	to assist the development of team plans	1
Solving problems	to assist team performance	3
Using technology	to assist the management of information	2

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competence, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- relevant industry codes of practice

- engage in tactical and operational planning within the organisation's strategic plans. For example, prepares an annual tactical plan for a department
 - take responsibility for own outputs in relation to broad quantity and quality parameters. For example, evaluates own annual performance against personal work plans and the organisation's standards
 - take limited responsibility for the achievement of group outcomes. For example, reviews group performance against plans and prepares in consultation with the group a performance improvement strategy
 - demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas. For example, understands in depth the principles and techniques of performance management
 - transfer and apply theoretical concepts and/or technical or creative skills to a range of situations. For example, researches, negotiates and establishes protocols for customer service for the department
 - analyse and plan approaches to technical problems or management requirements. For example, given the work team's inability to achieve planned outcomes/outputs, analyses the team's performance and develops strategies with the team to rectify the situation
 - evaluate information using it to forecast for planning or research purposes. For example, the organisation's goals and strategic and tactical plans are analysed in preparation for the preparation of the department's annual operational plan
-
- goals, objectives, plans, systems and processes
 - quality and continuous improvement processes and standards
 - access and equity principles and practice
 - business and performance plans
 - resources, which may be subject to negotiation
 - ethical standards
-
- award and enterprise agreements
 - commonwealth and state/territory legislative requirements especially in regard to Occupational Health and Safety
 - industry codes of practice
-
- adopt a variety of roles in teams including leader, facilitator, participant, coach, mentor
-
- one or a mixture of on-going, work-based, project-based, task specific, or cross-functional. Teams may include full time employees, contractors, part time employees

- those relevant to frontline management's work activities and to the teams in which frontline management is involved
- the abilities of the team members and may be formally recognised or not formally recognised. They may be industry-wide, enterprise specific or individual specific
- take place through a variety of methods including for example, coaching, mentoring, exchange/rotation, shadowing, action learning, structured training programs
- establish and maintain participative arrangements
- information to team about OHS and the organisation's OHS policies, procedures and practices

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, underpinning knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range Statement.

Critical Aspects of Evidence

- Provides leadership to team
- Contributes positively to team performance
- Provides coaching and mentoring support

Underpinning Knowledge

Underpinning knowledge relates to the essential knowledge and understanding a person needs to perform work to the required standard

- Relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- The principles and techniques associated with:
 - the organisation of teams
 - team goal setting
 - devolving responsibility/accountability to teams
 - team dynamics
 - conflict resolution
 - gaining team commitment
 - monitoring and assessing team performance
- Gain team commitment to the organisation's goals, values and plans
- The forms of bias/discrimination and how to deal with them

At this level the learner must demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas.

Underpinning Skills

- Functional literacy skills to access and use workplace information
- Assessing the competence of the team
- Facilitating the participation of team members
- Working effectively with team members who have diverse work styles, aspirations, cultures and perspectives
- Facilitating team development and improvement
- Assessing competency development requirements
- Gaining the trust and confidence of colleagues
- Dealing with people openly and fairly
- Using coaching and mentoring skills to provide support to colleagues
- Ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities

Resource Implications

The learner and trainer should have access to appropriate documentation and resources normally used in the workplace

Consistency of Performance

In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations

Context/s of Assessment

- Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement
- Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package
- Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment
- Assessment should reinforce the integration of the key competencies and the business services common competencies for the particular AQF level. Refer to the Key Competencies Levels earlier in this unit

BSBFLM505A

Unit Descriptor

Manage operational plan

This unit is equivalent to the original unit BSXFMI505A Manage operations to achieve planned outcomes.

Frontline management is actively engaged in planning, implementing, monitoring and recording performance to achieve the business plans of the team/organisation. This key role is carried out to provide safe, efficient and effective products and services to customer satisfaction within the organisation's productivity and profitability plans. At this level, work will normally be carried out within complex and diverse methods and procedures which require the exercise of considerable discretion and judgement, using a range of problem solving and decision making strategies.

This unit is imported from a primary training package and is being used in a floristry context.

Consider co-assessment with BSBFLM502A Provide leadership in the workplace, BSBFLM503A Establish effective workplace relationships, BSBFLM504A Facilitate work teams, BSBFLM506A Manage workplace information system, BSBMGT505A Ensure a safe workplace, and BSBFLM509A Promote continuous improvement.

Unit Sector

Business Management Services

ELEMENT

PERFORMANCE CRITERIA

- | | |
|----------------------|--|
| 1. Plan resource use | <ul style="list-style-type: none"> 1.1 Resource information for use in operational plans is collected, analysed and organised in consultation with colleagues and specialist resource managers 1.2 Resource information for use in operational plans is collected, analysed and organised in consultation with colleagues and specialist resource managers 1.3 Operational plans contribute to the achievement of the organisation's performance/business plan 1.4 Key performance indicators are developed within operational plans 1.5 Contingency plans are prepared in the event that initial plans need to be varied |
| 2. Acquire resources | <ul style="list-style-type: none"> 2.1 Employees are recruited and/or inducted within the organisation's human resource management policies and practices 2.2 Physical resources and services are acquired within the organisation's polices, practices and procedures |

- 3. Monitor operational performance
 - 3.1 Performance systems and processes are monitored to assess progress in achieving profit/productivity plans and targets
 - 3.2 Budget and actual financial information is analysed and interpreted to monitor profit/productivity performance
 - 3.3 Unsatisfactory performance is identified and prompt action is taken to rectify the situation
 - 3.4 Mentoring and coaching is provided to support individuals/teams use resources to the required standard
 - 3.5 Recommendations for variation to operational plans are negotiated and approved by the designated persons/groups
 - 3.6 Systems, procedures and records associated with documenting performance are managed in accordance with the organisation's requirements

KEY COMPETENCIES

NB:These levels do not relate to the Australian Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Key Competency	Example of Application	Performance Level
Communicating ideas and information	to share information with members of work team	2
Collecting analysing and organising information	to acquire information for planning	2
Planning and organising activities	to plan resource usage	3
Working with others and in teams	to achieve planning outcomes	3
Using mathematical ideas and techniques	to carry out calculations associated with resource usage	2
Solving problems	to attend to unsatisfactory performance	2
Using technology	to assist the management of information	2

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competence, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- relevant industry codes of practice

- engage in tactical and operational planning within the organisation's strategic plans. For example, prepares an annual tactical plan for a department
 - take responsibility for own outputs in relation to broad quantity and quality parameters. For example, evaluates own annual performance against personal work plans and the organisation's standards
 - take limited responsibility for the achievement of group outcomes. For example, reviews group performance against plans and prepares in consultation with the group a performance improvement strategy
 - demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas. For example, understands in depth the principles and techniques of performance management
 - transfer and apply theoretical concepts and/or technical or creative skills to a range of situations. For example, researches, negotiates and establishes protocols for customer service for the department
 - analyse and plan approaches to technical problems or management requirements. For example, given the work team's inability to achieve planned outcomes/outputs, analyses the team's performance and develops strategies with the team to rectify the situation
 - evaluate information using it to forecast for planning or research purposes. For example, the organisation's goals and strategic and tactical plans are analysed in preparation for the preparation of the department's annual operational plan
-
- goals, objectives, plans, systems and processes
 - quality and continuous improvement processes and standards
 - access and equity principles and practice
 - business and performance plans
 - resources, which may be subject to negotiation
 - ethical standards
-
- award and enterprise agreements
 - commonwealth and state/territory legislative requirements especially in regard to Occupational Health and Safety
 - industry codes of practice

people, power/energy, information, finance, buildings/facilities, equipment, technology, time

the tactical/operational plans developed by the department/section to detail product/service performance

those which govern the acquisition of resources, for example, the purchase of equipment

people at the same level or more senior managers, and may include people from a wide range of social, cultural and ethnic backgrounds. This will usually be from a wider spread of the organisation than at AQF level 4

those who have the authority to make decisions and/or recommendations about varying operations

- provision of information about OHS and the organisation's OHS policies, procedures and programs
- employee induction
- key performance indicators include OHS
- systems, procedures and records
- organisation's procedures for dealing with hazardous events

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, underpinning knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range Statement.

Critical Aspects of Evidence

- Produces short term plans for department/section
- Plans, acquires and uses resources
- Monitors and adjusts operational performance
- Reports performance

Underpinning Knowledge

Underpinning knowledge relates to the essential knowledge and understanding a person needs to perform work to the required standard

- Relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- The principles and techniques of:
 - planning operations
 - resource planning
 - resource management systems
 - budgeting and financial analysis and interpretation
 - monitoring performance
 - reporting performance
 - problem identification and resolution
- Alternative approaches to improving resource usage and eliminating resource inefficiencies and waste
- Ways of supporting individuals/teams who have difficulty in performing to the required standard

At this level the learner must demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas.

Underpinning Skills

- Functional literacy skills to access and use workplace information
- Maintaining a safe workplace and environment
- Accessing and using feedback to improve operational performance
- Preparing recommendations to improve operations
- Accessing and using established systems and processes
- Using coaching and mentoring skills to provide support to colleagues
- Ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities

Resource Implications

The learner and trainer should have access to appropriate documentation and resources normally used in the workplace

Consistency of Performance

In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations

Context/s of Assessment

- Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement
- Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package
- Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment
- Assessment should reinforce the integration of the key competencies and the business services common competencies for the particular AQF level. Refer to the Key Competencies Levels at the end of this unit

BSBFLM509A

Unit Descriptor

Promote continuous improvement

This unit is equivalent to the original unit BSXFMI509A Implement and monitor continuous improvement systems and processes.

Frontline management has an active role in managing the continuous improvement process in achieving the organisation's objectives. Their position, closely associated with the creation and delivery of products and services, means that they play an important part in influencing the on-going development of the organisation. At this level, work will normally be carried out within complex and diverse methods and procedures which require the exercise of considerable discretion and judgement, using a range of problem solving and decision making strategies.

This unit is imported from a primary training package and is being used in a beauty context.

Consider co-assessment with BSBFLM502A Provide leadership in the workplace, BSBFLM504A Facilitate work teams, BSBFLM505A Manage operational plan, BSBFLM507A Manage quality customer service, BSBMGT505A Ensure a safe workplace, BSBFLM510A Facilitate and capitalise on change and innovation, and BSBFLM511A Develop a workplace learning environment.

Unit Sector

Business Management Services

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Implement continuous improvement systems and processes | 1.1 The manager actively encourages and supports team members to participate in decision making processes and to assume responsibility and authority
1.2 The organisation's continuous improvement processes are communicated to individuals/teams
1.3 The manager's mentoring and coaching support ensures that individuals/teams are able to implement the organisation's continuous improvement processes |
| 2. Monitor, adjust and report performance | 2.1 The organisation's systems and technology are used to monitor progress and to identify ways in which planning and operations could be improved
2.2 <i>Customer service</i> is strengthened through the use of continuous improvement techniques and processes
2.3 Plans are adjusted and communicated to those who have a role in their development and implementation |
| 3. Consolidate opportunities for further improvement | 3.1 Team members are informed of savings and productivity/service improvements in achieving the business plan
3.2 Work performance is documented and the information is used to identify opportunities for further improvement
3.3 Records, reports and recommendations for improvement are managed within the organisation's systems and processes |

KEY COMPETENCIES

These levels do not relate to the Australian Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices

Key Competency	Example of Application	Performance Level
Communicating ideas and information	to individuals and work team about the organisation's continuous improvement processes	2
Collecting analysing and organising information	to be used in continuous improvement processes	2
Planning and organising activities	for arranging continuous improvement program	3
Working with others and in teams	to gain team feedback on further improvement initiatives	3
Using mathematical ideas and techniques	to complete calculations associated with work improvement	1
Solving problems	as an aid to investigating problems with introducing improvements	2
Using technology	to assist the management of information	2

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competence, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- relevant industry codes of practice

- engage in tactical and operational planning within the organisation's strategic plans. For example, prepares an annual tactical plan for a department
 - take responsibility for own outputs in relation to broad quantity and quality parameters. For example, evaluates own annual performance against personal work plans and the organisation's standards
 - take limited responsibility for the achievement of group outcomes. For example, reviews group performance against plans and prepares in consultation with the group a performance improvement strategy
 - demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas. For example, understands in depth the principles and techniques of performance management
 - transfer and apply theoretical concepts and/or technical or creative skills to a range of situations. For example, researches, negotiates and establishes protocols for customer service for the department
 - analyse and plan approaches to technical problems or management requirements. For example, given the work team's inability to achieve planned outcomes/outputs, analyses the team's performance and develops strategies with the team to rectify the situation
 - evaluate information using it to forecast for planning or research purposes. For example, the organisation's goals and strategic and tactical plans are analysed in preparation for the preparation of the department's annual operational plan
-
- goals, objectives, plans, systems and processes
 - quality and continuous improvement processes and standards
 - access and equity principles and practice
 - business and performance plans
 - resources, which may be subject to negotiation
 - ethical standards
-
- award and enterprise agreements
 - commonwealth and state/territory legislative requirements especially in regard to Occupational Health and Safety
 - industry codes of practice
-
- that readily available in the workplace and will be appropriate to frontline management's roles and responsibilities
-
- internal or external, to existing or new clients

- implement and monitor participative arrangements for the management of OHS
- delegation and reporting complies with requirements of OHS legislation
- the continuous improvement processes of any OHS management system are established and maintained

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range Statement.

Critical Aspects of Evidence

- Adjusts plans, processes and procedures to improve performance
- Supports others to implement the continuous improvement system/processes
- Identifies opportunities for further improvement

Underpinning Knowledge

- Relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- The principles and techniques associated with:
 - continuous improvement systems and processes
 - benchmarking
 - best practice
- The benefits of continuous improvement
- The quality approaches which the organisation may implement
- The methods that can be used in continuous improvement
- The barriers to continuous improvement
- The organisation's recording, reporting and recommendation processes to facilitate continuous improvement

At this level the learner must demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas

Underpinning Skills

- Functional literacy skills to access and use workplace information
- Communication skills including researching, analysing and interpreting information from a variety of people and reporting
- Monitoring and evaluating systems, processes and procedures
- Gaining the commitment of individuals/teams to continuous improvement
- Consolidating opportunities for improvement
- Dealing with people openly and fairly
- Using consultation skills effectively
- Using coaching and mentoring skills to provide support to colleagues
- Ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities

Resource Implications

The learner and trainer should have access to appropriate documentation and resources normally used in the workplace

Consistency of Performance

In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations

Context/s of Assessment

- Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement
- Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package
- Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment
- Assessment should reinforce the integration of the key competencies and the business services common competencies for the particular AQF level. Refer to the Key Competencies Levels at the end of this unit

BSBFLM510A

Facilitate and capitalise on change and innovation

Unit Descriptor

This unit is equivalent to the original unit BSXFMI510A Facilitate and capitalise on change and innovation.

Frontline management has an active role in fostering change and acting as a catalyst in the implementation of change and innovation. They have a creative role in ensuring that individuals, the team and the organisation gain from change; and that the customer benefits through improved products and services. At this level, work will normally be carried out within complex and diverse methods and procedures which require the exercise of considerable discretion and judgement, using a range of problem solving and decision making strategies.

Co assessed units: Opportunities for co-assessment are encouraged as part of the holistic approach promoted in the assessment guidelines. In the case of this unit consideration could be given to co-assessing in part or whole with:

Consider co-assessment with BSBFLM502A Provide leadership in the workplace, BSBFLM504A Facilitate work teams, BSBFLM505A Manage operational plan, and BSBFLM509A Promote continuous improvement.

Unit Sector

Business Management Services

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Participate in planning the introduction of change | <ul style="list-style-type: none"> 1.1 The manager contributes effectively in the organisation's planning processes to introduce change 1.2 Plans to introduce change are made in consultation with designated individuals/groups 1.3 The organisation's objectives and plans to introduce change are explained clearly to individuals/teams |
| 2. Develop creative and flexible approaches and solutions | <ul style="list-style-type: none"> 2.1 Alternative approaches to managing workplace issues and problems are identified and analysed 2.2 Risks are assessed and action is taken to achieve a recognised benefit or advantage to the organisation 2.3 The workplace is managed in a way which promotes the development of innovative approaches and outcomes 2.4 Creative and responsive approaches to resource management improves productivity and services and/or reduces costs |

- 3. Manage emerging challenges and opportunities
 - 3.1 Individuals/teams respond effectively and efficiently to changes in the organisation's goals, plans and priorities
 - 3.2 Coaching and mentoring assists individuals/teams to develop competencies to handle change efficiently and effectively
 - 3.3 The manager uses opportunities within their responsibility and authority to make adjustments to respond to the changing needs of customers and the organisation
 - 3.4 Individuals/teams are kept informed of progress in the implementation of change
 - 3.5 Recommendations for improving the methods/techniques to manage change are negotiated with designated individuals/groups

KEY COMPETENCIES

NB:These levels do not relate to the Australian Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Three levels of performance denote level of competency required to perform a task.

1. Perform 2. Administer 3. Design

Key Competency	Example of Application	Performance Level
Communicating ideas and information	to obtain information about the change processes	2
Collecting analysing and organising information	to individuals and team members about the impending changes	2
Planning and organising activities	to introduce change	3
Working with others and in teams	to engage in the change process	3
Using mathematical ideas and techniques	to make calculations associated with implementing change	2
Solving problems	to address difficulties arising from the changes	2
Using technology	to assist in the management of information	2

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competence, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- relevant industry codes of practice

- engage in tactical and operational planning within the organisation's strategic plans. For example, prepares an annual tactical plan for a department
- take responsibility for own outputs in relation to broad quantity and quality parameters. For example, evaluates own annual performance against personal work plans and the organisation's standards
- take limited responsibility for the achievement of group outcomes. For example, reviews group performance against plans and prepares in consultation with the group a performance improvement strategy
- demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas. For example, understands in depth the principles and techniques of performance management
- transfer and apply theoretical concepts and/or technical or creative skills to a range of situations. For example, researches, negotiates and establishes protocols for customer service for the department
- analyse and plan approaches to technical problems or management requirements. For example, given the work team's inability to achieve planned outcomes/outputs, analyses the team's performance and develops strategies with the team to rectify the situation
- evaluate information using it to forecast for planning or research purposes. For example, the organisation's goals and strategic and tactical plans are analysed in preparation for the preparation of the department's annual operational plan

- goals, objectives, plans, systems and processes
- quality and continuous improvement processes and standards
- access and equity principles and practice
- business and performance plans
- resources, which may be subject to negotiation
- ethical standards

- award and enterprise agreements
- commonwealth and state/territory legislative requirements especially in regard to Occupational Health and Safety
- industry codes of practice

- a person with frontline management roles and responsibilities, regardless of the title of their position

- those who have a stake in the change and innovation

- provision of information about OHS in context of change and the organisation's OHS policies, procedures and programs
- implement and monitor participative arrangements for management of OHS in context of change
- OHS hazard identification, risk assessment and control
- implement procedures for dealing with hazardous events

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range Statement.

Critical Aspects of Evidence

- Identifies opportunities to improve performance in consultation with appropriate individuals/groups
- Develops flexible and creative approaches and strategies to introduce and manage change and innovation
- Assesses risks associated with the introduction of change
- Provides coaching and mentoring support to facilitate change

Underpinning Knowledge*

Underpinning knowledge relates to the essential knowledge and understanding a person needs to perform work to the required standard

- Relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- The principles and techniques associated with:
 - managing change and innovation
 - assessing risks
- The management styles which facilitate change
- The organisation's processes and procedures to plan and introduce change
- The sources of change and how they impact on the organisation
- The factors which lead/cause resistance to change

At this level the learner must demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas.

Underpinning Skills

- Functional literacy skills to access and use workplace information
- Communication skills including researching and analysing information, reporting.
- Influencing the organisation's culture so that it is receptive to change and innovation
- Monitoring trends in the internal and/or external environment
- Responding positively to new situations/challenges
- Evaluating alternative proposals for change
- Drawing on the diversity of the workplace to assist the organisation benefit from change
- Managing resistance to change
- Gaining the trust and confidence of colleagues
- Dealing with people openly and fairly
- Using consultation skills effectively
- Using coaching and mentoring skills to provide support to colleagues
- Ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities

Resource Implications

The learner and trainer should have access to appropriate documentation and resources normally used in the workplace

Consistency of Performance

In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations

Context/s of Assessment

- Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement
- Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package
- Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment
- Assessment should reinforce the integration of the key competencies and the business services common competencies for the particular AQF level. Refer to the Key Competencies Levels at the end of this unit

BSBFLM511A

Unit Descriptor

Develop a workplace learning environment

This unit is equivalent to the original unit BSXFMI511A Contribute to the development of a workplace learning environment.

Frontline management plays a prominent role in encouraging and supporting the development of a learning organisation. Promoting a learning environment in which work and learning are integrated is an important goal to be achieved. At this level, work will normally be carried out within complex and diverse methods and procedures which require the exercise of considerable discretion and judgement, using a range of problem solving and decision making strategies.

Consider co-assessment with BSBFLM501A Manage personal work priorities and professional development, BSBFLM502A Provide leadership in the workplace, BSBFLM505A Manage operational plan, BSBFLM507A Manage quality customer service, and BSBMGT505A Ensure a safe workplace.

Unit Sector

Business Management Services

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Create learning opportunities | <ul style="list-style-type: none"> 1.1 Workplace environments which facilitate learning are developed and supported 1.2 Learning plans are developed as an integral part of individual/team performance plans 1.3 Learning plans reflect the diversity of needs and learning opportunities 1.4 Individual/team access to, and participation in, learning opportunities is facilitated 1.5 Negotiation with training and development specialists results in the planning and provision of learning which enhances individual, team and organisational performance |
| 2. Facilitate and promote learning | <ul style="list-style-type: none"> 2.1 Workplace activities are used as opportunities for learning 2.2 Coaching and mentoring contributes effectively to development of workplace knowledge, skills and attitudes 2.3 The benefits of learning are shared with others in the team/organisation 2.4 Workplace achievement is recognised by timely and appropriate recognition, feedback and rewards |
| 3. Monitor and improve learning effectiveness | <ul style="list-style-type: none"> 3.1 Performance of individuals/teams is monitored to determine the type and extent of additional work-based support 3.2 Feedback from individuals/teams is used to identify and introduce improvements in future learning arrangements 3.3 Adjustments negotiated with training and development specialists result in improvements to the efficiency and effectiveness of learning 3.4 Records and reports of competency are documented and maintained within the organisation's systems and procedures |

KEY COMPETENCIES

NB: These levels do not relate to the Australian Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Three levels of performance denote level of competency required to perform a task.

1. Perform 2. Administer 3. Design

Key Competency	Example of Application	Performance Level
Communicating ideas and information	to assemble information about learning options	2
Collecting analysing and organising information	to convey learning opportunities to individuals/teams	2
Planning and organising activities	to develop learning plans	3
Working with others and in teams	to promote the development of a learning culture	3
Using mathematical ideas and techniques	to compile financial data about learning arrangements	1
Solving problems	as an aid to resolving difficulties with competency development	3
Using technology	to assist in the management of information	2

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competence, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- relevant industry codes of practice

- engage in tactical and operational planning within the organisation's strategic plans. For example, prepares an annual tactical plan for a department
 - take responsibility for own outputs in relation to broad quantity and quality parameters. For example, evaluates own annual performance against personal work plans and the organisation's standards
 - take limited responsibility for the achievement of group outcomes. For example, reviews group performance against plans and prepares in consultation with the group a performance improvement strategy
 - demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas. For example, understands in depth the principles and techniques of performance management
 - transfer and apply theoretical concepts and/or technical or creative skills to a range of situations. For example, researches, negotiates and establishes protocols for customer service for the department
 - analyse and plan approaches to technical problems or management requirements. For example, given the work team's inability to achieve planned outcomes/outputs, analyses the team's performance and develops strategies with the team to rectify the situation
 - evaluate information using it to forecast for planning or research purposes. For example, the organisation's goals and strategic and tactical plans are analysed in preparation for the preparation of the department's annual operational plan
-
- goals, objectives, plans, systems and processes
 - quality and continuous improvement processes and standards
 - access and equity principles and practice
 - business and performance plans
 - resources, which may be subject to negotiation
 - ethical standards
-
- award and enterprise agreements
 - commonwealth and state/territory legislative requirements especially in regard to Occupational Health and Safety
 - industry codes of practice
-
- internal or external
-
- mentoring, action learning, coaching, shadowing, exchange/rotation

- implement and monitor the organisation's procedures for providing OHS training
- learning plans include OHS
- training records include OHS

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range Statement.

Critical Aspects of Evidence

- Facilitates the development of a learning environment
- Identifies workplace activities which facilitate learning
- Negotiates learning arrangements with training and development specialists
- Provides coaching and mentoring support

Underpinning Knowledge*

- Underpinning knowledge relates to the essential knowledge and understanding a person needs to perform work to the required standard
- Relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- The principles and techniques associated with:
 - adult learning
 - establishing a learning environment
 - work based learning
 - structuring learning

At this level the learner must demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas.

Underpinning Skills

- Functional literacy skills to access and use workplace information
- Identifying learning needs
- Developing learning plans
- Selecting and using work activities to create learning opportunities
- Establishing a workplace which is conducive to learning
- Negotiating learning arrangements with training and development specialists
- Encouraging colleagues to share their knowledge and skills
- Using coaching and mentoring to support learning
- Evaluating the effectiveness of learning
- Gaining the trust and confidence of colleagues
- Dealing with people openly and fairly
- Using consultation skills effectively
- Ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities

Resource Implications

The learner and trainer should have access to appropriate documentation and resources normally used in the workplace

Consistency of Performance

In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations

Context/s of Assessment

- Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement
- Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package
- Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment
- Assessment should reinforce the integration of the key competencies and the business services common competencies for the particular AQF level. Refer to the Key Competencies Levels at the end of this unit

BSZ401A
Unit Descriptor

Plan assessment

This unit covers the requirements for planning an assessment in a specific context. The unit details the requirements for determining evidence requirements, selecting appropriate assessment methods and developing an assessment tool in a specific context.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Establish evidence required for a specific context | <ul style="list-style-type: none"> 1.1 The evidence required to infer competency from the industry/enterprise competency standards, or other standards of performance, is established for a specified context 1.2 Relevant unit(s) of competency is read and interpreted accurately to identify the evidence required 1.3 Specified evidence requirements: <ul style="list-style-type: none"> 1.3.1 assure valid and reliable inferences of competency, authenticate the performance of the person being assessed and confirm that competency is current 1.4 Sufficient evidence is specified to show consistent achievement of the specified standards 1.5 The cost of gathering the required evidence is established |
| 2. Establish suitable assessment method(s) | <ul style="list-style-type: none"> 2.1 Assessment methods are selected which are appropriate for gathering the type and amount of evidence required 2.2 Opportunities to consolidate evidence gathering activities are identified 2.3 Allowable adjustments in the assessment method are proposed to cater for the characteristics of the person(s) being assessed |
| 3. Develop assessment tools appropriate to a specific assessment context | <ul style="list-style-type: none"> 3.1 An assessment tool is developed to gather valid, reliable and sufficient evidence for a specific assessment context 3.2 The assessment tool is designed to mirror the language used to demonstrate the competency in a specific context 3.3 Clear instructions (spoken or written) are prepared including any adjustments which may be made to address the characteristics of the person(s) being assessed 3.4 The assessment tool is checked to ensure flexible, fair, safe and cost-effective assessment to occur |

BSZ401A Plan assessment

- 4. Trial assessment procedure
 - 4.1 Assessment methods and tools are trialed with an appropriate sample of people to be assessed
 - 4.2 Evaluation of the methods and tools used in the trial provides evidence of clarity, reliability, validity, fairness, cost effectiveness and ease of administration
 - 4.3 Appropriate adjustments are made to improve the assessment method and tools in light of the trial
 - 4.4 Assessment procedures, including evidence requirements, assessment methods and tools, are ratified with appropriate personnel in the industry/enterprise and/or training organisation where applicable

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	3
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	3
Using mathematical ideas and techniques	3
Solving problems	2
Using technology	2

RANGE STATEMENT

- the industry through the endorsed component of Training Packages Assessment Guidelines
- the enterprise
- a Registered Training Organisation
- a combination of the above.

- the purpose of assessment
 - competencies required of assessors
 - record keeping procedures and policies
 - any allowable adjustments to the assessment method which may be made
 - the appeal/review mechanisms and procedures
 - the review and evaluation of the assessment process
 - the linkages between assessment and training qualifications/awards
 - employee classification
 - remuneration
 - progression
 - relevant policies
 - quality assurance mechanisms
 - apportionment of costs/fees (if applicable)
 - marketing/promotion of assessment
 - verification arrangements
 - auspicing arrangements, if applicable
 - partnership arrangements, if applicable.
-
- purpose of the assessment such as
 - to gain a particular qualification or a licence
 - to determine employee classification
 - to recognise prior learning/current competencies
 - to identify training needs or progress.
 - location of the assessment such as:
 - on the job or off the job
 - combination of both.
 - Assessment Guidelines of Training Package or other assessment requirements
-
- language, literacy and numeracy needs
 - cultural, language and educational background
 - gender
 - physical ability
 - level of confidence, nervousness or anxiety
 - age
 - experience in training and assessment
 - previous experience with the topic.
-
- Assessors
 - person(s) being assessed
 - employee/union representatives
 - consultative committees
 - users of assessment information such as training providers, employers, human resource departments
 - State/Territory Training/Recognition Authorities
 - training and assessment coordinators
 - relevant managers/supervisors team leaders
 - technical specialists.

- The assessment procedure is developed (and endorsed) by person(s) responsible for the implementation of the assessment process in:
 - the industry
 - the enterprise
 - the training organisation
 - a combination of the above.
- The assessment procedure should specify the following:
 - recording procedure
 - appeal/review mechanism
 - assessment methods to be used
 - instructions/materials to be provided to the person(s) being assessed
 - criteria for making decisions of competent, or not yet competent
 - number of assessors
 - assessment tools
 - evidence required
 - location of assessment
 - timing of assessment
 - assessment group size
 - allowable adjustments to the assessment procedure depending on the characteristics of the person being assessed.

- direct observation of performance, products, practical tasks, projects and simulation exercises
- review of log books/or and portfolios of evidence
- consideration of third party reports and authenticated prior achievements
- written, oral or computer managed questioning
- These methods may be used in combination in order to provide sufficient evidence to make a judgement.

- specific instructions to be given relating to the performance of practical tasks or processes or simulation exercises
- specific instructions to be given in relation to the production of projects and exercises
- sets of verbal/written/computer based questions to be asked
- performance checklists
- log books
- descriptions of competent performance.

A number of these tools may be used in combination in order to provide enough evidence to make judgments.

- time
 - location
 - personnel
 - finances/costs
 - equipment
 - materials
 - OHS requirements
 - enterprise/industry standard operating procedures.
-
- provision of personal support services (eg Auslan interpreter, reader, interpreter, attendant carer, scribe)
 - use of adaptive technology or special equipment (eg word processor or lifting gear)
 - design of shorter assessment sessions to allow for fatigue or medication
 - use of large print version of any papers.

EVIDENCE GUIDE

Critical aspects of evidence

Assessment requires evidence of the following products to be collected:

- Documentation in relation to:
 - specific assessment context, including the purpose of assessment
 - features of the assessment system
 - characteristics of the person being assessed
 - evidence of competency required
 - plan of opportunities for gathering the evidence required
 - assessment methods selected including any allowable adjustments to meet characteristics of person(s) being assessed
- An assessment tool(s) for the specific assessment context which ensures valid, reliable, flexible and fair assessment including any allowable adjustments.
- An assessment procedure for the specific context.

Assessment requires evidence of the following processes to be provided:

- How the context of assessment was specified
- How the characteristics of the person(s) being assessed were identified
- Why a particular assessment method was selected
- How the assessment was planned to ensure that language, literacy and numeracy issues were taken into consideration
- How evidence was evaluated in terms of validity, authenticity, sufficiency, currency and consistent achievement of the specified standard
- How the assessment tool was developed for the specified context
- How the assessment tool was validated and ratified by appropriate personnel.

Interdependent assessment of units

This unit of competency may be assessed in conjunction with other units that form part of a job role.

Required knowledge and skills

- Knowledge of standards of performance including industry or enterprise competency standards and assessment guidelines
- Knowledge of legal and ethical responsibilities including occupational health and safety regulations and procedures, equal employment and anti-discrimination requirements relevant to the specified context
- Understanding of the assessment principles of reliability, validity, fairness, flexibility, authenticity, sufficiency and consistency
- Knowledge of the Assessment Guidelines of the Training Package Assessment and Workplace Training
- Skills in the application of various assessment methods, relevant to workplace context
- Planning of own work including predicting consequences and identifying improvements
- Language, literacy and numeracy skills required to:
 - read and interpret relevant information to plan assessment
 - give clear and precise information / instructions in spoken or written form
 - adjust spoken and written language to suit target audience
 - write assessment tools using language which mirrors the language used to demonstrate the competency in the specific context
 - prepare required documentation using clear and comprehensible language and layout
 - calculate and estimate costs
- Communication skills appropriate to the culture of the workplace and the individual(s).

Resource implications

- Access to relevant competencies, sources of information on assessment methods, assessment tools and assessment procedures
- Access to person(s) wishing to be assessed, any relevant workplace equipment, information and appropriate personnel.

Consistency in performance

- Competency in this unit needs to be assessed over a period of time, in a range of contexts and on multiple occasions, involving a combination of direct, indirect and supplementary forms of evidence.

Context for assessment

- Assessment should occur on the job or in a simulated workplace. The candidate assessor should use competencies relevant to their area of technical expertise.

BSZ402A

Conduct assessment

Unit Descriptor

This unit covers the requirements for conducting an assessment in accordance with an assessment procedure in a specific context.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Identify and explain the context of assessment | <ul style="list-style-type: none"> 1.1 The context and purpose of assessment are discussed and confirmed with the person(s) being assessed 1.2 The relevant performance standards to be used in the assessment (eg. current endorsed competency standards for the specific industry) are clearly explained to the person being assessed 1.3 The assessment procedure is clarified and expectations of assessor and candidate are agreed 1.4 Any legal and ethical responsibilities associated with the assessment are explained to the person(s) being assessed 1.5 The needs of the person being assessed are determined to establish any allowable adjustments in the assessment procedure 1.6 Information is conveyed using language and interactive strategies and techniques to communicate effectively with the person(s) being assessed |
| 2. Plan evidence gathering opportunities | <ul style="list-style-type: none"> 2.1 Opportunities to gather evidence of competency, which occurs as part of workplace or training activities, are identified covering the dimensions of competency 2.2 The need to gather additional evidence which may not occur as part of the workplace or training activities are identified 2.3 Evidence gathering activities are planned to provide sufficient, reliable, valid and fair evidence of competency in accordance with the assessment procedure |
| 3. Organise assessment | <ul style="list-style-type: none"> 3.1 The resources specified in the assessment procedure are obtained and arranged within a safe and accessible assessment environment 3.2 Appropriate personnel are informed of the assessment 3.3 Spoken interactions and any written documents employ language and strategies and techniques to ensure the assessment arrangements are understood by all person(s) being assessed and appropriate personnel |

- 4. Gather evidence
 - 4.1 Verbal and non-verbal language is adjusted and strategies are employed to promote a supportive assessment environment to gather evidence
 - 4.2 The evidence specified in the assessment procedure is gathered, using the assessment methods and tools
 - 4.3 Evidence is gathered in accordance with specified allowable adjustments where applicable
 - 4.4 The evidence gathered is documented in accordance with the assessment procedure

- 5. Make the assessment decision
 - 5.1 The evidence is evaluated in terms of:
 - 5.1.1 validity
 - 5.1.2 authenticity
 - 5.1.3 sufficiency
 - 5.1.4 currency
 - 5.1.5 consistent achievement of the specified standard
 - 5.2 The evidence is evaluated according to the dimensions of competency:
 - 5.2.1 task skills
 - 5.2.2 task management skills
 - 5.2.3 contingency management skills
 - 5.2.4 job/role environment skill
 - 5.2.5 transfer and application of knowledge and skills to new contexts
 - 5.3 Guidance is sought, when in doubt, from a more experienced assessor(s)
 - 5.4 The assessment decision is made in accordance with the criteria specified in the assessment procedure

- 6. Record assessment results
 - 6.1 Assessment results are recorded accurately in accordance with the specified record keeping requirements
 - 6.2 Confidentiality of assessment outcome is maintained and access to the assessment records is provided only to authorised personnel.

- 7. Provide feedback to persons being assessed
 - 7.1 Clear and constructive feedback in relation to performance is given to the person(s) being assessed using language and strategies to suit the person(s) including guidance on further goals/training opportunities is provided to the person(s) being assessed
 - 7.2 Opportunities for overcoming any gaps in competency, as revealed by the assessment, are explored with the person(s) being assessed
 - 7.3 The person(s) being assessed is advised of available reassessment opportunities and/or review appeal mechanisms where the assessment decision is challenged

- 8. Report on the conduct of the assessment
 - 8.1 Positive and negative features experienced in conducting the assessment are reported to those responsible for the assessment procedure
 - 8.2 Any assessment decision disputed by the person(s) being assessed is recorded and reported promptly to those responsible for the assessment procedure
 - 8.3 Suggestions for improving any aspect of the assessment process are made to appropriate personnel

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	2
Solving problems	2
Using technology	3

RANGE STATEMENT

- the industry
- the enterprise
- a Registered Training Organisation
- a combination of the above.

- the purpose of assessment
- competencies required of assessors
- record keeping procedures and policies
- any allowable adjustments to the assessment method which may be made
- the appeal/review mechanisms and procedures
- the review and evaluation of the assessment process
- the linkages between assessment and training qualifications/awards, employee classification, remuneration, progression
- relevant policies
- quality assurance mechanisms
- apportionment of costs/fees (if applicable)
- marketing/promotion of assessment
- verification arrangements
- auspicing arrangements, if applicable
- partnership arrangements, if applicable.

- purpose of the assessment, such as
 - to gain a particular qualification or a licence
 - to determine employee classification
 - to identify training needs or progress
 - to recognise prior learning/current competencies.
 - location of the assessment, such as
 - on the job or off the job
 - combination of both.
 - Assessment Guidelines of the relevant Training Package or other assessment requirements
 - features of assessment system.
-
- language, literacy and numeracy needs
 - cultural, language and educational background
 - gender
 - physical ability
 - level of confidence, nervousness or anxiety
 - age
 - experience in training and assessment
 - previous experience with the topic.
-
- assessors
 - person(s) being assessed
 - employee/union representatives
 - consultative committees
 - users of assessment information such as training providers, employers, human resource departments
 - State/Territory Training/Recognition Authorities
 - training and assessment coordinators
 - relevant managers/supervisors/team leaders
 - technical specialists.

- The assessment procedure is developed (and endorsed) by person(s) responsible for the implementation of the assessment process in:
 - the industry
 - the enterprise
 - the training organisation
 - a combination of the above.
- The assessment procedure should specify the following:
 - recording procedure
 - appeal/review mechanism
 - assessment methods to be used
 - instructions/materials to be provided to the person(s) being assessed
 - criteria for making decisions of competent, or not yet competent
 - number of assessors
 - assessment tools
 - evidence required
 - location of assessment
 - timing of assessment
 - assessment group size
 - allowable adjustments to the assessment procedure depending on the characteristics of the person(s) being assessed.

- work samples and /or simulations
- direct observation of performance, products, practical tasks, projects and simulation exercises
- review of log books and portfolios
- questioning
- consideration of third party reports and authenticated prior achievements
- written, oral or computer managed questioning

These methods may be used in combination in order to provide sufficient evidence to make a judgement.

- specific instructions to be given relating to the performance of practical tasks or processes or simulation exercises
- specific instructions to be given in relation to projects and exercises
- sets of oral/written/computer based questions to be asked
- performance checklists
- log books
- marking guides
- descriptions of competent performance.

A number of these tools may be used in combination in order to provide enough evidence to make judgments.

- provision of personal support services (eg Auslan interpreter, reader, interpreter, attendant carer, scribe)
 - use of adaptive technology or special equipment (eg work processor or lifting gear)
 - design of shorter assessment sessions to allow for fatigue or medication
 - use of large print version of any papers.
-
- time
 - location
 - personnel
 - finances/costs
 - equipment
 - materials
 - OHS requirements
 - enterprise/industry standard operating procedures.
-
- forms designed for the specific assessment result (paper or electronic)
 - checklists for recording observations/process used (paper or electronic)
 - combination of the above.
-
- Final assessments will record the unit(s) of competency in terms of code, title and endorsement date
 - Summative assessment reports, where issued, will indicate units of competency where additional learning is required

NB: Statutory and legislative requirements for maintaining records may vary in States/Territories.

EVIDENCE GUIDE

Critical aspects of evidence

Assessment requires evidence of the following products to be collected:

- Description of the assessment context, including the purpose of assessment,
- The relevant competency or other performance standard and assessment procedure used
- Description of how evidence gathered is valid, authentic, sufficient, fair and reliable to ensure competency
- Conduct of assessment in accordance with competency requirements
- Recording of the assessment results in accordance with the specified assessment procedure and record keeping requirements
- Report on the conduct of the assessment, including positive and negative features and suggestions for improving any aspect of the assessment process.

Assessment requires evidence of the following processes to be provided:

- How agreement was sought with the person(s) being assessed on the conduct of the assessment
- How opportunities to gather evidence were identified as part of workplace or training activities
- How evidence was gathered in accordance with the assessment procedure
- How evidence gathering activity covered the dimensions of competency
- How resources were arranged according to the assessment procedure
- How appropriate personnel were consulted
- How evidence was gathered in accordance with allowable adjustments to the assessment method where applicable
- How evidence was evaluated in terms of validity, authenticity, sufficiency, currency and consistent achievement of the specified standard
- How the assessment was conducted to ensure that :
 - all arrangements and activities were understood by all parties
 - the person was put at ease and the supportive assessment environment was created
 - language, literacy and numeracy issues were taken into consideration
- How constructive feedback was provided to the person(s) being assessed including instances of not yet competent
- How guidance was provided to person(s) being assessed on how to overcome gaps in competency revealed.

Interdependent assessment of units

This unit of competency may be assessed in conjunction with other units that form part of a job role.

Required skills and knowledge

- Knowledge of workplace application of relevant standards of performance including industry or enterprise competency standards and assessment guidelines
- Knowledge of legal and ethical responsibilities including occupational health and safety regulations and procedures, equal employment and anti-discrimination requirements relevant to the specified context
- Understanding of policies and procedures of the workplace and/or job role together with any related legislation or regulatory requirements
- Understanding of the assessment principles of reliability, validity, fairness, flexibility, authenticity, sufficiency and consistency
- Assessment guidelines of the Training Package Assessment and Workplace Training
- Planning of own work including predicting consequences and identifying improvements
- Skills in the application of various assessment methods/tools, relevant to workplace context
- Language, literacy and numeracy skills required to:
 - give clear and precise instructions and information in spoken or written form
 - seek confirmation of understanding from the person(s) being assessed
 - adjust language to suit target audience
 - prepare required documentation using clear and comprehensible language and layout
 - ask probing questions and listen strategically to understand responses of the person being assessed
 - seek additional information for clarification purposes
 - use verbal and non-verbal language to promote a supportive assessment environment
 - use language of negotiation and conflict resolution to minimise conflict
- Communication skills appropriate to the culture of the workplace and the individual(s).

Resource implications:

- Access to relevant competencies, sources of information on assessment methods, assessment tools and assessment procedures
- Access to person(s) wishing to be assessed, relevant workplace equipment, information and appropriate personnel.

Consistency of performance:

Competency in this unit needs to be assessed over a period of time, in a range of contexts and on multiple occasions involving a combination of direct, indirect and supplementary forms of evidence.

Assessment context:

Assessment should occur on the job or in a simulated workplace. The candidate assessor should use competencies relevant to their technical expertise.

BSZ403A**Unit Descriptor****Review assessment**

This unit covers requirements to review assessment procedures in a specific context.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|---|---|
| 1. Review the assessment procedure(s) | <ul style="list-style-type: none"> 1.1 Appropriate personnel are given the opportunity to review the assessment outcomes and procedure using agreed evaluation criteria 1.2 The review process established by the enterprise, industry or registered training organisation is followed 1.3 The assessment procedure(s) is reviewed at a specified site in cooperation with person(s) being assessed, and any appropriate personnel in the industry/enterprise/training establishment and/or any agency identified under legislation 1.4 Review activities are documented, findings are substantiated and the review approach evaluated. |
| 2. Check consistency of assessment decision | <ul style="list-style-type: none"> 2.1 Appropriate personnel are given the opportunity to review the assessment outcomes and procedure using agreed evaluation criteria 2.2 The review process established by the enterprise, industry or registered training organisation is followed 2.3 The assessment procedure(s) is reviewed at a specified site in cooperation with person(s) being assessed, and any appropriate personnel in the industry/enterprise/training establishment and/or any agency identified under legislation 2.4 Review activities are documented, findings are substantiated and the review approach evaluated. |
| 3. Report review findings | <ul style="list-style-type: none"> 3.1 Recommendations are made to appropriate personnel for modifications to the assessment procedure(s) in light of the review outcomes 3.2 Records are evaluated to determine whether the needs of appropriate personnel have been met 3.3 Effective contributions are made to system-wide reviews of the assessment process and feedback procedures and are reviewed |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	3
Using mathematical ideas and techniques	3
Solving problems	3
Using technology	3

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the Performance Criteria, is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

- the industry
- the enterprise
- the Registered Training Organisation
- a combination of the above.
- The assessment system should specify the following:
 - the purpose of assessment
 - competencies required of assessors
 - record keeping procedures and policies
 - any allowable adjustments to the assessment method which may be made for the person being assessed who have special needs
 - the appeal/review mechanisms and procedures
 - the review and evaluation of the assessment process
 - the linkages between assessment and training qualifications/awards, employee classification, remuneration, progression
 - relevant policies
 - quality assurance mechanisms
 - apportionment of costs/fees (if applicable)
 - marketing/promotion of assessment
 - verification arrangements
 - auspicing arrangements, if applicable
 - partnership arrangements, if applicable.

- the industry
- the enterprise
- the Registered Training Organisation
- a combination of the above.
- The assessment system should specify the following:
 - the purpose of assessment
 - competencies required of assessors
 - record keeping procedures and policies
 - any allowable adjustments to the assessment method which may be made for the person being assessed who have special needs
 - the appeal/review mechanisms and procedures
 - the review and evaluation of the assessment process
 - the linkages between assessment and training qualifications/awards, employee classification, remuneration, progression
 - relevant policies
 - quality assurance mechanisms
 - apportionment of costs/fees (if applicable)
 - marketing/promotion of assessment
 - verification arrangements
 - auspicing arrangements, if applicable
 - partnership arrangements, if applicable.

- number of persons being assessed
- duration of the assessment procedure
- organisational constraints within which assessors must operate
- occupational health and safety factors
- relationship of the assessor to other appropriate personnel in the assessment process
- frequency of assessment procedure
- budgetary restraints
- information needs of government and other regulatory bodies
- support needs and professional development needs of assessors
- characteristics of persons being assessed
- human resource management implications
- consistency of assessment decisions
- levels of flexibility in the assessment procedure
- fairness of the assessment procedure
- efficiency and effectiveness of the assessment procedure
- competencies achieved by the person(s) being assessed
- difficulties encountered during the planning and conduct of the assessment
- motivation of the person(s) being assessed
- location and resource suitability
- reliability, validity, fairness and flexibility of the assessment tool(s)
- relevance of assessment to specified context
- grievances/challenges to the assessment decision by the person(s) being assessed or their supervisor/manager/employer
- ease of administration
- access and equity considerations
- practicability.

- number of persons being assessed
 - duration of the assessment procedure
 - organisational constraints within which assessors must operate
 - occupational health and safety factors
 - relationship of the assessor to other appropriate personnel in the assessment process
 - frequency of assessment procedure
 - budgetary restraints
 - information needs of government and other regulatory bodies
 - support needs and professional development needs of assessors
 - characteristics of persons being assessed
 - human resource management implications
 - consistency of assessment decisions
 - levels of flexibility in the assessment procedure
 - fairness of the assessment procedure
 - efficiency and effectiveness of the assessment procedure
 - competencies achieved by the person(s) being assessed
 - difficulties encountered during the planning and conduct of the assessment
 - motivation of the person(s) being assessed
 - location and resource suitability
 - reliability, validity, fairness and flexibility of the assessment tool(s)
 - relevance of assessment to specified context
 - grievances/challenges to the assessment decision by the person(s) being assessed or their supervisor/manager/employer
 - ease of administration
 - access and equity considerations
 - practicability.
-
- assessors
 - person(s) being assessed
 - employee/union representatives
 - consultative committees
 - users of assessment information such as training providers, employers, human resource departments
 - State/Territory Training/Recognition Authorities
 - training and assessment coordinators
 - relevant managers/supervisor/team leaders
 - technical specialists.
-
- The assessment procedure is developed (and endorsed) by person(s) responsible for the implementation of the assessment process in:
 - the industry
 - the enterprise
 - the training organisation
 - a combination of the above.

- recording procedure
- appeal/review mechanism
- assessment methods to be used
- instructions/materials to be provided to the person(s) being assessed
- criteria for making decisions of competent, or not yet competent
- number of assessors
- assessment tools
- evidence required
- location of assessment
- timing of assessment
- assessment group size
- allowable adjustments to the assessment procedure depending on characteristics of person(s) being assessed.

- recording procedure
- appeal/review mechanism
- assessment methods to be used
- instructions/materials to be provided to the person(s) being assessed
- criteria for making decisions of competent, or not yet competent
- number of assessors
- assessment tools
- evidence required
- location of assessment
- timing of assessment
- assessment group size
- allowable adjustments to the assessment procedure depending on characteristics of person(s) being assessed.

- specific instructions to be given relating to the performance of practical tasks or processes or simulation exercises
- specific instructions to be given in relations to the production projects and exercises
- sets of oral/written/computer based questions to be asked
- performance checklists
- log books
- marking guides
- descriptions of competent performance

A number of these tools may be used in combination in order to provide enough evidence to make judgments.

- specific instructions to be given relating to the performance of practical tasks or processes or simulation exercises
- specific instructions to be given in relations to the production projects and exercises
- sets of oral/written/computer based questions to be asked
- performance checklists
- log books
- marking guides
- descriptions of competent performance

A number of these tools may be used in combination in order to provide enough evidence to make judgments.

- time
- location
- personnel
- finances/costs
- equipment
- materials
- OHS requirements
- enterprise/industry standard operating procedures.

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Critical aspects of evidence

Assessment requires evidence of the following products to be collected:

- Documented process for the review of the assessment procedure(s)
- A report on the review of the operations and outcomes of the assessment procedure(s) including substantiation of findings and any recommendations for modifications.

Assessment requires evidence of the following processes to be provided:

- How the review process for evaluating the assessments in the enterprise, industry or organisation was implemented
- Why particular review/evaluation methodologies were chosen
- How cooperation and input from the person(s) assessed and appropriate personnel was sought as part of the review.

Interdependent assessment of units:

Assessment requires evidence of the following products to be collected:

- Documented process for the review of the assessment procedure(s)
- A report on the review of the operations and outcomes of the assessment procedure(s) including substantiation of findings and any recommendations for modifications.

Assessment requires evidence of the following processes to be provided:

- How the review process for evaluating the assessments in the enterprise, industry or organisation was implemented
- Why particular review/evaluation methodologies were chosen
- How cooperation and input from the person(s) assessed and appropriate personnel was sought as part of the review.

Required knowledge and skills

- Knowledge of the review process established by the industry, enterprise or training organisation
- Knowledge of evaluation methodologies relevant to the assessment context
- Relevant standards of performance including industry or enterprise competency standards and assessment guidelines
- Knowledge of legal and ethical responsibilities including occupational health and safety regulations and procedures, equal employment and anti-discrimination requirements
- Knowledge of relevant organisational policies and procedures of the workplace and/or job roll
- Understanding of the assessment principles of reliability, validity, fairness, flexibility, authenticity, sufficiency and consistency
- Skills in the application of various assessment methods/tools in a relevant workplace context
- Planning own work including predicting consequences and identifying improvements
- Language, literacy and numeracy skills required to:
 - read and interpret review procedures
 - participate in discussions and listen strategically to evaluate information critically
 - gather, select and organise findings from a number of sources
 - document findings in summary form, graphs or tables
 - present findings in a short report to relevant personnel
 - make recommendations based on findings
 - determine cost effectiveness
- Communication skills appropriate to the culture of the workplace and the individual(s).

Resource implications:

- Knowledge of the review process established by the industry, enterprise or training organisation
- Knowledge of evaluation methodologies relevant to the assessment context
- Relevant standards of performance including industry or enterprise competency standards and assessment guidelines
- Knowledge of legal and ethical responsibilities including occupational health and safety regulations and procedures, equal employment and anti-discrimination requirements
- Knowledge of relevant organisational policies and procedures of the workplace and/or job roll
- Understanding of the assessment principles of reliability, validity, fairness, flexibility, authenticity, sufficiency and consistency
- Skills in the application of various assessment methods/tools in a relevant workplace context
- Planning own work including predicting consequences and identifying improvements
- Language, literacy and numeracy skills required to:
 - read and interpret review procedures
 - participate in discussions and listen strategically to evaluate information critically
 - gather, select and organise findings from a number of sources
 - document findings in summary form, graphs or tables
 - present findings in a short report to relevant personnel
 - make recommendations based on findings
 - determine cost effectiveness
- Communication skills appropriate to the culture of the workplace and the individual(s).

Consistency in performance

Competency in this unit needs to be assessed over a period of time, in a range of contexts and on multiple occasions involving a combination of direct, indirect and supplementary forms of evidence.

Context for assessment

Competency in this unit needs to be assessed over a period of time, in a range of contexts and on multiple occasions involving a combination of direct, indirect and supplementary forms of evidence.

BSZ404A
Unit Descriptor

Train small groups

This unit covers the requirements for planning, delivering and reviewing training provided for the purposes of developing competency on a one-to-one or small group basis.

Unit Sector No sector assigned

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for training	1.1 Specific needs for training are identified and confirmed through consultation with appropriate personnel 1.2 Training objectives are matched to identified competency development needs 1.3 Training approaches are planned and documented
2. Deliver training	2.1 Training is conducted in a safe and accessible environment 2.2 Training delivery methods are selected appropriate to training participant(s) needs, trainer availability, location and resources 2.3 Strategies and techniques are employed which facilitate the learning process 2.4 Objectives of the training, sequence of activities and assessment processes are discussed with training participant(s) 2.5 A systematic approach is taken to training and the approach is revised and modified to meet specific needs of training participant(s)
3. Provide opportunities for practices	3.1 Practice opportunities are provided to ensure that the participant achieves the components of competency 3.2 Various methods for encouraging learning are implemented to provide diverse approaches to meet the individual needs of participants
4. Review training	4.1 Participants are encouraged to self evaluate performance and identify areas for improvement 4.2 Participants readiness for assessment is monitored and assistance provided in the collection of evidence of satisfactory performance 4.3 Training is evaluated in the context of self-assessment, participant feedback, supervisor comments and measurements against objectives 4.4 Training details are recorded according to enterprise and legislative requirements 4.5 Results of evaluation are used to guide further training

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	3
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	2
Solving problems	2
Using technology	2

RANGE STATEMENT

- industry/enterprise or other performance competency standards
 - endorsed components of relevant industry training package
 - industry/workplace training practices
 - job descriptions
 - results of training needs analyses
 - business plans of the organisation which identify skill development requirements
 - standard operating and/or other workplace procedures.
-
- team leaders/supervisors/ technical experts
 - managers/employers
 - training and assessment coordinators
 - training participants
 - representative government regulatory bodies
 - union/employee representatives
 - consultative committees
 - assessors.
-
- presentations
 - demonstrations
 - explanations
 - problem solving
 - mentoring
 - experiential learning
 - group work
 - on the job coaching
 - job rotation
 - a combination of the above.

- task skills
 - task management skills
 - contingency management skills
 - job/role environment skills
 - transfer and application of skills and knowledge of new contents.
-
- language, literacy and numeracy needs
 - cultural, language, and educational background
 - gender
 - physical ability
 - level of confidence, nervousness or anxiety
 - age
 - previous experience with the topic
 - experience in training and assessment.
-
- one to one demonstration
 - small group demonstration (2 to 5 persons).
-
- time
 - location
 - personnel
 - materials and equipment
 - OHS and other workplace requirements
 - enterprise/industry standard operating procedures
 - finances/costs.
-
- active listening
 - targeted questioning
 - points of clarification
 - group discussions.

EVIDENCE GUIDE

Critical aspects of evidence

Assessment requires evidence of the following products to be collected:

- Description of the specific training need and required competency outcomes
- Outline of the training approach and steps to be followed
- Description of training participant(s) and delivery method(s) to be used
- Specific resources required
- Outline of the evidence to be collected for monitoring training participant progress
- Trainer's self assessment of training delivery
- Participant evaluation of training delivery
- Evaluation of review comments against plan of training
- Records/documentation for monitoring progress of training participant(s).

Evidence may be collected using proformas or template

Assessment requires evidence of the following processes to be provided:

- How the specific training need was determined
- How the sequence of the training was determined
- How appropriate personnel were identified
- Why particular delivery method(s) were selected
- How the characteristics of training participant(s) as identified
- How the resource requirements were established
- How participant progress was monitored
- Why and how the training resources were selected
- How appropriate personnel confirmed training arrangements
- How participant(s) were informed of:
 - intended training outcomes
 - competencies to be achieved
 - on and/or off the job practice opportunities
 - benefits of practices
 - learning activities and tasks
 - assessment tasks and requirements
- How constructive feedback was provided to training participant about progress toward competency to be acquired
- How training participant readiness for assessment was determined and confirmed
- How records were maintained to ensure confidentiality, accuracy and security.

Evidence may be provided verbally or in written form

Interdependent assessment of units

This unit may be assessed in conjunction with other units that form part of a job function.

Required knowledge and skills:

- Competency in the units being taught
- Workplace application of the relevant competencies
- Identification of evidence of competency
- Planning of own work including predicting consequences and identifying improvements
- Application of relevant workplace policies (eg OHS and EEO) and any relevant legislative or regulatory requirements
- Correct use of equipment, and any other processes and procedures appropriate for the training
- Ethical handling of performance issues
- Language, literacy and numeracy required skills to:
 - conduct discussions and ask probing questions to review the training
 - gather information (in spoken or written form) for review purposes
 - make verbal recommendations for delivery of future training
 - adjust language to suit target audience (training participant/appropriate personnel)
 - complete records on training
 - provide verbal feedback & report on training outcomes
 - follow and model examples of written texts
 - promote training in verbal or written form
- Communication skills appropriate to the culture of the workplace, appropriate personnel and training participants.

Resource implications

Access to records system for training, information, and training participants and supervisory staff (where appropriate).

Consistency in performance

Competency in this unit needs to be assessed over a period of time, in a range of contexts and on multiple occasions involving a combination of direct, indirect and supplementary forms of evidence.

Context for assessment

Assessment may occur on the job or in a simulated workplace. Candidate workplace trainers should use competencies relevant to their area of technical expertise.

LMTEMGN06A

Unit Descriptor

Design equipment and system modifications

This unit covers the skills and knowledge required to design equipment and system modifications for applications within in a TCF enterprise.

Unit Sector

Engineering and Maintenance

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Assess requirements | 1.1 Modification or design requirement is established to take into account production, facility, OH&S and environmental factors
1.2 Design concepts are established, taking into consideration process, material, quantity, cost and outcome requirements
1.3 Codes, regulations and technical documentation are consulted to establish design limitations, where applicable
1.4 Specialist expertise is consulted as required |
| 2. Evaluate options | 2.1 Options are defined and evaluated to determine most appropriate design modification
2.2 Selected option is confirmed with appropriate personnel in accordance with workplace procedures |
| 3. Design modifications | 3.1 Modification is designed to meet end use specifications/standards and all legislative or regulatory requirements
3.2 Verification of the design is undertaken in accordance with enterprise procedures |
| 4. Coordinate design implementation and testing | 4.1 Implementation of the design/modification is arranged and coordinated
4.2 Design outcome is tested and assessed to establish conformance to requirements
4.3 Variations to the design are assessed where necessary
4.4 Documentation is prepared to meet all requirements |
| 5. Maintain records | 5.1 Records are maintained of design and modification outcomes in accordance with enterprise procedures |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	3
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	2
Using mathematical ideas and techniques	3
Solving problems	3
Using technology	3

RANGE STATEMENT

- Competence must be demonstrated in the design of equipment and system modifications for applications within in a TCF enterprise
- Significant judgement is required in planning, design, technical or supervisory activities related to operations or processes
- Work is assessed in accordance with statutory requirements, organisation insurance requirements, OH&S legislation, manual handling procedures and relevant health regulations

- Work may be conducted in a large scale production or small business situation in a TCF sector
- The competencies can apply to the design of equipment/system modifications associated with product changes or improvements and/or establishment of a new production line
- Design activities relate to processes which are based on established principles and practices, and that require modifications determined by experience and analysis
- Work is undertaken to meet specifications
- Activities may involve:
 - design research and consultation with internal or external specialists
 - assessment and evaluation of design concepts
 - design implementation and testing of modifications
- The competencies are applied under limited guidance in line with a broad plan, budget or strategy
- Knowledge and skills are applied:
 - as part of major functional area
 - in highly specialised situations requiring a range of skills
- The competencies are used independently within substantially non-routine situations

- Work instructions
- Manufacturer's specifications and instructions
- Organisation work procedures and specifications
- Organisational or external personnel
- Quality and Australian standards and procedures

- Work organisation procedures and practices relating to the design of equipment and system modifications for applications within a TCF enterprise
 - Conditions of service, legislation and industrial agreements including:
 - workplace agreements and awards
 - Federal or State/Territory legislation
 - Standard work practices
 - Reporting actions include verbal and written communication in accordance with organisational policies and procedures
 - Communication may be oral, written or visual and can include simple data
 - Being responsible for the maintenance of own work quality and being required to contribute to the quality improvement of team or section output, where necessary
 - Safety, environmental, housekeeping and quality are as specified by machine/equipment manufacturers, regulatory authorities and the enterprise
-
- Occupational health and safety legislation relevant to workplace activities
 - Relevant Australian design standards
 - Workers' compensation legislation
 - Environmental legislation and regulations

EVIDENCE GUIDE

Critical aspects of evidence to be considered

- Assessment must confirm appropriate knowledge and skills to:
 - establish design/modification requirements
 - assess design and modification options
 - organise implementation of design/modification
 - ensure work meets specifications
 - apply workplace health and safety policies in work operations
 - maintain accurate records

Interdependent assessment of units

- This unit does not necessarily need to be assessed in conjunction with other units and can be assessed independently

Required knowledge and skills

- Underpinning knowledge of:
 - appropriate design techniques
 - relevant Australian design standards
 - OH&S considerations and environmental factors in relation to equipment/system design
 - safety and environmental aspects of relevant enterprise activities
 - workplace procedures and reporting/recording processes
 - relevant regulatory requirements and codes of practice
- Underpinning skills to:
 - interpret design requirements
 - apply technical skills, including performing technical calculations
 - conduct tests and prepare drawings/documentation
 - evaluate design options
 - communicate effectively within the workplace, including liaising with other departments
 - establish or interpret procedures, where required
 - determine report requirements and present information in appropriate formats

Resource implications

- Access to real or appropriately simulated situations involving the design of equipment and system modifications for applications within a TCF context
- This includes real or simulated work areas, materials, equipment, and information on work specifications, manufacturer's instructions, relevant safety procedures and regulations, quality standards, organisation procedures and customer requirements

Consistency in performance

- Applies underpinning knowledge and skills when:
 - organising work
 - evaluating design options
 - completing tasks
 - identifying improvements
 - applying safety precautions relevant to the task
- assessing operational capability of specified equipment used and work processes
- Shows evidence of application of relevant workplace procedures including:
 - hazard policies and procedures including codes of practice
 - job procedures and work instructions
 - quality procedures (where existing)
 - waste, pollution and recycling management processes
- Action taken promptly, accidents and incidents reported in accordance with statutory requirements and enterprise procedures
- Recognises and adapts appropriately to cultural differences in the workplace, including modes of behaviour and interactions among staff and others
- Work completed systematically with attention to detail without damage to goods, equipment or personnel

Context for assessment

- Assessment may occur on the job or in an appropriately simulated environment

LMTEMGN07A

Manage installation and commissioning of equipment and systems

Unit Descriptor

This unit covers the skills and knowledge required to manage the installation and commissioning of equipment and systems used in a TCF enterprise.

Unit Sector

Engineering and Maintenance

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Prepare work plan and specification document | 1.1 Items to be included in work plan and specification document are identified and confirmed
1.2 Work plan for installation and commissioning of equipment/systems is drawn up, including management and reporting procedures
1.3 Specification document is prepared according to enterprise and/or manufacturers' procedures |
| 2. Coordinate and monitor contract arrangements | 2.1 Contract arrangements for the installation and commissioning of equipment/systems, including all legal, insurance and safety requirements, are coordinated in accordance with enterprise and/or legislative procedures
2.2 Contract arrangements are monitored to ensure compliance with requirements and variations dealt with according to agreed strategy |
| 3. Manage schedules and budgets | 3.1 Information is gathered to establish adherence to schedule and budget forecasts
3.2 Deviation from performance targets is monitored and corrective action taken, if and where necessary
3.3 Scheduling and budgeting processes are assessed to determine whether variations or alternative plans are indicated |
| 4. Administer legal, environmental and OH&S requirements | 4.1 Legal, environmental and OH&S requirements related to installation and commissioning of equipment/systems are defined
4.2 Monitoring of the process is assessed to ensure compliance |
| 5. Assess and report on work completion | 5.1 Completed work is assessed to confirm all specifications have been incorporated
5.2 Report on work completed is prepared in accordance with enterprise procedures |
| 6. Maintain records | 6.1 Records are maintained of installation and commissioning activities in accordance with enterprise procedures |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	3
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	3
Using mathematical ideas and techniques	3
Solving problems	3
Using technology	3

RANGE STATEMENT

- Competence must be demonstrated in the management of the installation and commissioning of equipment and systems used in a TCF enterprise
- Significant judgement is required in planning, technical or supervisory activities related to operations or processes
- Work is assessed in accordance with statutory requirements, organisation insurance requirements, OH&S legislation, manual handling procedures and relevant health regulations

- Work may be conducted in a large scale production or small business situation in a TCF sector
- The competencies apply to workplace activities associated with management of the installation and commissioning of equipment and systems used in the enterprise
- The competencies can relate to on-shore or off-shore applications; it would include all local requirements and may include establishing a new production line
- Work may involve individual and team related activities, and can include liaison with specialist technicians or contractors
- Equipment and systems may include:
 - microprocessor or computer control
 - production and facility equipment used within the enterprise
- The competencies are applied under limited guidance in line with a broad plan, budget or strategy
- Knowledge and skills are applied to major functions and/or highly specialised situations requiring a range of skills
- The competencies are used independently within substantially non-routine situations

- Work instructions
- Manufacturer's specifications and instructions
- Organisation work procedures and specifications
- Organisational or external personnel
- Quality and Australian standards and procedures

- Work organisation procedures and practices relating to the management of the installation and commissioning of equipment and systems used in a TCF enterprise
- Conditions of service, legislation and industrial agreements including:
 - workplace agreements and awards
 - Federal or State/Territory legislation
- Standard work practices
- Reporting actions include verbal and written communication in accordance with organisational policies and procedures
- Communication may be oral, written or visual and can include simple data
- Being responsible for the maintenance of own work quality and being required to contribute to the quality improvement of team or section output, where necessary
- Safety, environmental, housekeeping and quality are as specified by machine/equipment manufacturers, regulatory authorities and the enterprise

- Occupational health and safety legislation relevant to workplace activities
- Relevant Australian design standards
- Workers' compensation legislation
- Environmental legislation and regulations

EVIDENCE GUIDE

Critical aspects of evidence to be considered

- Assessment must confirm appropriate knowledge and skills to:
 - develop and prepare work plan and specification documents
 - organise and monitor contract arrangements
 - assess scheduling and budgeting procedures
 - implement legal, environmental and OH&S obligations/requirements
 - ensure completed work meets specifications
 - maintain accurate records

Interdependent assessment of units

- This unit does not necessarily need to be assessed in conjunction with other units and can be assessed independently

Required knowledge and skills

- Underpinning knowledge of:
 - appropriate installation and commissioning procedures
 - OH&S considerations and environmental factors
 - contract requirements
 - safety and environmental aspects of relevant enterprise activities
 - workplace procedures and reporting/recording processes
 - relevant regulatory requirements and codes of practice
 - relevant OH&S legislation, regulatory requirements and codes of practice
- Underpinning skills to:
 - monitor contract arrangements, scheduling and budgets
 - manage the application of technical skills by other personnel
 - communicate effectively within the workplace, including liaising with other departments
 - establish or interpret procedures, where required
 - determine report requirements and present information in appropriate formats

Resource implications

- Access to real or appropriately simulated situations involving the management of the installation and commissioning of equipment and systems used in a TCF context
- This includes real or simulated work areas, materials, equipment, and information on work specifications, manufacturer's instructions, relevant safety procedures and regulations, quality standards, organisation procedures and customer requirements

Consistency in performance

- Applies underpinning knowledge and skills when:
 - organising work
 - managing activities and personnel
 - completing tasks
 - identifying improvements
 - applying safety precautions relevant to the task
 - assessing operational capability of specified equipment used and work processes
- Shows evidence of application of relevant workplace procedures including:
 - hazard policies and procedures including codes of practice
 - job procedures and work instructions
 - quality procedures (where existing)
 - waste, pollution and recycling management processes
- Action taken promptly, accidents and incidents reported in accordance with statutory requirements and enterprise procedures
- Recognises and adapts appropriately to cultural differences in the workplace, including modes of behaviour and interactions among staff and others
- Work completed systematically with attention to detail without damage to goods, equipment or personnel

Context for assessment

- Assessment may occur on the job or in an appropriately simulated environment

LMTPDHL06A**Unit Descriptor****Manage product development projects**

This unit covers the range of skills required to monitor and manage product development projects within the enterprise. It includes assessing and evaluating the final product.

Unit Sector

Product Development

ELEMENT**PERFORMANCE CRITERIA**

1. Define project parameters	1.1 Product requirements, time-lines and budget are identified and confirmed 1.2 Project parameters are clarified 1.3 Details are documented in accordance with enterprise procedures
2. Prepare time-line/critical path	2.1 Project steps for achievement of outcome are determined 2.2 Time constraints/key completion dates are identified and correlated with project steps 2.3 Documentation is prepared in accordance with enterprise procedures
3. Select and brief team	3.1 Appropriate personnel are selected for the product development project team 3.2 Tasks are appropriately allocated according to the available expertise and requirements of the project 3.3 Information relating to standards, constraints, preferred processes, designs and techniques is conveyed to the team 3.4 Relevant technical, monitoring and reporting procedures are established
4. Monitor progress	4.1 Communication occurs with all parties to ensure obligations, quality, time-lines, budget and technical constraints are met 4.2 Any problems or revisions are identified and action taken as required, in accordance with enterprise procedures 4.3 Records or reports are reviewed or prepared in accordance with enterprise procedures
5. Evaluate final product	5.1 Information on the development process is assembled and evaluated 5.2 Product outcome is assessed against development/preliminary specifications, in consultation with others 5.3 Significant results are identified, in consultation with others where necessary, and used to draft plans for future action
6. Cost outcome	6.1 Development costs are monitored in accordance with enterprise requirements 6.2 Product costs are determined in consultation with others
7. Liaise with production team	7.1 Liaison is maintained with production team to facilitate product development and confirm feasibility of outcome

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	3
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	3
Using mathematical ideas and techniques	2
Solving problems	3
Using technology	3

RANGE STATEMENT

- Work is performed under limited guidance in line with a broad plan or strategy
- Significant judgement is required in planning, design, technical or supervisory activities related to products or processes
- Work is assessed in accordance with statutory requirements, organisation insurance requirements, OH&S legislation, manual handling procedures and relevant health regulations

- Product development projects may be ideas or requests initiated by:
 - client
 - enterprise
 - Project parameters include:
 - product requirements
 - time-lines
 - budget
 - constraints (technical and budgetary)
 - standards
 - preferred processes
 - Development may involve application associated with:
 - original ideas
 - adaption of concepts
 - analysis of products
 - Contexts may be related to:
 - small production runs
 - large production runs
 - Activities may include:
 - project team selection
 - work allocation
 - monitoring development
 - reviewing/evaluating process
 - costing procedures
 - Liaison could include:
 - relevant personnel
 - client
 - other functional areas
 - Data recording may include:
 - keyboard
 - manual recording applications
-
- Market research data/information/sources
 - Product/process specifications
 - Machine/equipment manufacturers specifications and instructions
 - Production schedules
 - Financial and budgetary documentation
 - Organisation work orders
 - Regulatory and enterprise safety procedures
 - Organisational or external personnel
 - Quality and Australian standards and procedures
 - Customer/s

- Work organisation procedures and practices relating to product development
 - Conditions of service, legislation and industrial agreements including:
 - workplace agreements and awards
 - Federal or State/Territory legislation
 - Reporting actions include verbal and written communication in accordance with organisational policies and procedures
 - Communication may be oral, written or visual and can include simple data
 - Being responsible for the maintenance of own work quality and being required to contribute to the quality improvement of team or section output, where necessary
 - Safety, environmental, housekeeping and quality are as specified by machine/equipment manufacturers, regulatory authorities and the enterprise
-
- Occupational health and safety legislation relevant to workplace activities
 - Workers' compensation legislation
 - Environment protection legislation

EVIDENCE GUIDE

Critical aspects of evidence to be considered

- Assessment must confirm appropriate skills and knowledge to:
 - clarify parameters of project and establish project steps
 - select appropriate personnel and allocate work
 - ensure progress meets requirements
 - assess final outcome against specifications
 - establish costs

Interdependent assessment of units

- This unit does not need to be assessed in conjunction with other units and can be assessed independently

Required knowledge and skills

- Underpinning knowledge of:
 - relevant OH&S legislation, codes of practice, copyright obligations, policies and procedures
 - production processes and industry products/processes
 - links across the industry; the industry, global and local trends; and research sources
 - hides, skins and leather, raw materials and their properties, characteristics and finishes
 - machine/equipment, resource and skill capabilities within the enterprise
 - costing, recording and reporting processes as they apply in the enterprise
 - safety and environmental aspects of relevant enterprise activities
 - workplace procedures and reporting processes
- Underpinning skills to:
 - perform the tasks and responsibility requirements of product development management
 - monitor progress and deal with problems/revisions
 - assess raw material and product for their properties/characteristics in relation to problems or design options
 - identify constraints
 - determine/recommend options
 - communicate effectively within the workplace
 - establish, analyse and/or interpret procedures, where required
 - determine report requirements and present information

Resource implications

- Access to real or appropriately simulated work situation, product development requirements, relevant information, quality standards, procedures or information associated with organisation or customer requirements

Consistency in performance

- Applies underpinning knowledge and skills when:
 - applying significant judgement in planning technical or supervisory activities related to products, services and operations
 - dealing with contingencies
 - monitoring and completing tasks
 - establishing procedures for improvements
 - managing a safe workplace
 - assessing capability of equipment used, where relevant, and work processes selected
- Shows evidence of application of relevant workplace procedures including:
 - hazard policies and procedures, including codes of practice
 - issue resolution procedures
 - job procedures and work instructions
 - relevant guidelines relating to safe use of equipment, where applicable
 - quality procedures (where existing)
 - security procedures
 - waste, pollution and recycling management processes
- Action taken promptly, accidents and incidents reported in accordance with statutory requirements and organisation procedures
- Recognises and adapts appropriately to cultural differences in the workplace, including modes of behaviour and interactions among staff and others
- Work completed systematically with attention to detail without damage to goods, equipment or personnel

Context for assessment

- Assessment may occur on the job or in an appropriately simulated workplace

PMACOM300A

Contribute to the development of plant documentation

Unit Descriptor

This unit of competency covers the development of relevant plant documentation and systems in response to identified information requirements including the development and/or amendment of workplace documents, procedures and record keeping systems.

This competency is typically performed by an experienced operator, leading hand or supervisor.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Identify information need/deficiency. | 1.1 Determine the information requirements of the organisation
1.2 Evaluate current documentation
1.3 Recognise information need/deficiency
1.4 Discuss information requirements with appropriate personnel. |
| 2. Develop/revise plant documentation. | 2.1 Specify information need and set/prioritise objectives
2.2 Analyse existing documentation/records in accordance with specified requirements
2.3 Develop/amend documentation as a draft in accordance with specifications to standard format
2.4 Issue documentation to appropriate personnel for review
2.5 Edit documentation and amend in accordance with review requirements
2.6 Complete documentation to satisfy the initial identified need/deficiency. |
| 3. Communicate changes to plant documentation. | 3.1 Explain and communicate documentation to all relevant personnel
3.2 Distribute documentation to all appropriate personnel
3.3 Evaluate implementation of documentation
3.4 Amend documents if required. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	3
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	2
Solving problems	2
Using technology	2

RANGE STATEMENT

- maintenance logs
- non-compliance reports
- incidence and accident reports
- permits
- schematics/process flows/ engineering drawings.
- job cards
- standard operating procedures
- work instructions
- operating manuals
- quality procedures
- training program contents
- materials safety data sheets.

This competency includes the ability to use items of equipment such as computer equipment.

All operations are performed in accordance with standard procedures and work instructions.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements:

Application of knowledge of the organisation's information systems, procedures, equipment and relevant documentation sufficient to be able to develop or amend company documentation.

Knowledge of the relevant OH&S and environmental requirements is required along with an ability to implement them in a manner which is relevant to the drafting of all relevant documentation.

Thorough knowledge of enterprise standard operating procedures/work instructions.

Critical aspects:

Competence must be demonstrated in the ability to draft and amend company documentation in accordance with specifications. Documentation is completed in a clear and concise manner, that is easily understood by others and in accordance with workplace requirements/specifications.

Consistent performance should be demonstrated. In particular look to see that:

- information required is researched and intended use is taken into account
- documentation is completed accurately, concisely and in accordance with requirements
- completed documentation is easily understood by the recipient
- information is communicated in the appropriate manner
- communication distinguishes between relevant and peripheral issues.

Language, literacy and numeracy requirements:

This unit requires the ability to write workplace documentation such as procedures, work instructions, processes and other workplace documentation.

Numeracy is also required, eg, to interpret data in the form of tables and graphs.

Assessment method and context:

Competence in this unit may be assessed:

- on an operating plant allowing for operation under all normal and a range of abnormal conditions
- by use of a suitable simulation and/or a range of case studies/scenarios
- by a combination of these techniques.

In all cases it is expected that practical assessment will be combined with targeted questioning to assess the underpinning knowledge and theoretical assessment will be combined with appropriate practical/simulation or similar assessment.

Resource implications

This section should be read in conjunction with the range of variables for this unit of competency. Resources required include suitable access to an operating plant or equipment that allows for appropriate and realistic simulation. A bank of case studies/scenarios and questions will also be required to the extent that they form part of the assessment method.

Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunchroom. No other special resources are required.

PREREQUISITES

This competency has **no** prerequisites.

PMAOHS100B

Follow OHS procedures

Unit Descriptor

On completion of this unit, the worker will be able to accurately recognise hazards commonly occurring at the workplace and follow health and safety instructions and procedures in the workplace. These instructions and procedures relate to the work being undertaken by the worker. The worker will be aware of the importance of maintaining their health and safety and the health and safety of others in the workplace. The worker will also be capable of dealing with incidents and emergencies within the worker's scope of responsibility and under the direction of the supervisor.

Whilst the instructions and procedures must be derived from the relevant organisational OHS policies, the worker is not required to understand or interpret these policies.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Recognise hazards. | 1.1 Describe hazards commonly found in the workplace
1.2 Check work area routinely before and during work
1.3 Describe causes of such hazards. |
| 2. Follow procedures for hazard control. | 2.1 Follow procedures to remove or minimise hazards, within the scope of responsibilities and competencies
2.2 Use required personal protective and other safety equipment
2.3 Identify the consequences of failing to follow these procedures and instructions. |
| 3. Follow emergency procedures. | 3.1 Recognise emergency/emergency alarm
3.2 Go to muster point following procedure
3.3 Follow instructions related to the emergency. |
| 4. Report problems. | 4.1 Report to appropriate people in accordance with workplace procedures when hazards arise. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	-
Working with others and in teams	-
Using mathematical ideas and techniques	-
Solving problems	1
Using technology	-

RANGE STATEMENT

This unit of competency describes OHS requirements applicable for all workers whose work involves the use of workplace policies and procedures to maintain a safe work environment for themselves and others.

This competency covers process manufacturing plants which may involve workplace hazards such as:

- chemicals and hazardous materials
- gases and liquids under pressure
- moving machinery
- materials handling
- working at heights, in restricted or confined spaces, or environments subjected to heat, noise, dusts or vapours.

Routine checks of work area include:

- housekeeping checks such as obstructions on the floor which may create slip/trip hazard
- guards in place
- equipment in safe condition
- work area clear and organised
- nothing unusual/different
- emergency equipment available
- PPE is functional.

It is expected that workers will be provided with clear directions, information, instruction, training and appropriate supervision regarding the relevant State/Territory OHS legislation, codes of practice, relevant industry standards, workplace procedures and work instructions.

Appropriate personnel for OHS referrals may include:

- employer
- supervisor
- employees elected as OHS representatives
- other personnel with OHS responsibilities.
- OHS issues which may need to be raised by workers with designated personnel may include:
 - recognition of hazards
 - problems encountered in controlling risks associated with hazards
 - observation of an injury and/or incident which occurred in the workplace
 - clarification of understanding of OHS policies and procedures.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be in an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations that will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual plant and will include walk-throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk-throughs of abnormal operations) and off the plant.

Critical aspects

It is essential that the workplace OHS system be understood and that the importance of critical procedures be known. Competence must be demonstrated in the ability to recognise potential situations requiring action and then in implementing appropriate corrective action. The emphasis should be on the ability to avoid a critical incident rather than on recovery from a disaster.

Consistent performance should be demonstrated. In particular look for evidence of:

recognition of hazards and application of appropriate risk controls

recognition of other hazards in the workplace that may arise and reporting/taking actions according to procedure.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk-through forming part of the response. These assessment activities should include a range of routine problems that may have been generated from the past incident history of the plant and incidents on similar plants around the world.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of knowledge and understanding over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to check the reasoning behind the observable actions.

Other assessment advice

It is expected that this competency may be applicable in combination with other industry, occupation or workplace-specific competencies. In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of the workplace OHS system sufficient to recognise situations affecting occupational health and safety and to take the appropriate action to rectify the situation. An awareness that OHS issues are regulated by State/Territory Acts, regulations, codes of practice and industry standards is required.

Employees need to be able to follow OHS procedures.

Competence includes the ability to:

apply and describe procedures for:

- recognising hazards in the workplace
- recognising safety signs and symbols
- recognising hazards commonly found in the workplace and standard controls
- reporting hazards identified to the designated person/according to procedure

describe the rights and responsibilities of employees under the OHS legislation

use and maintain appropriate PPE

communicate OHS issues

locate and follow OHS procedures under direct supervision.

PMAOHS110B

Respond to emergency situation

Unit Descriptor

This unit relates to the appropriate response to emergency situations for any new workers at the workplace, possibly delivered as part of an induction program. On completion, the learner knows the signals when an emergency situation takes place as well as the proper procedures to follow in order to save oneself from possible injury and/or death.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---------------------------------|---|
| 1. Know when emergency happens. | 1.1 Locate emergency signals and controls on machines and/or at the worksite
1.2 Interpret the signals to take appropriate action
1.3 Identify emergency where there is no mechanical/electronic signal even when an emergency has occurred. |
| 2. Follow emergency procedures. | 2.1 Report emergency according to <u>procedures</u>
2.2 Identify emergency leader
2.3 Follow workplace <u>procedures</u> and work instructions for dealing with a range of emergencies, under direct supervision of emergency leader
2.4 Describe the consequences of failing to follow these <u>procedures</u> and instructions
2.5 Describe what to do if the emergency leader cannot be located when emergency occurs. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This unit of competency describes emergency situation requirements applicable to all workers. It involves the use of workplace policies and procedures to maintain a safe work environment for oneself and others.

This competency covers process manufacturing plants which may involve workplace hazards such as:

- chemicals and hazardous materials
- gases and liquids under pressure
- moving machinery
- materials handling
- working at heights, in restricted or confined spaces, or environments subjected to heat, noise, dusts or vapours.

Emergency situations may include:

- incidents resulting in serious injury
- fires
- chemical or oil spills
- gas leak or vapour emission
- utilities failure
- bomb scares.

Enterprise policies and procedures include those which directly or indirectly cover emergency situations, such as:

- emergency, fire and incident procedures
- hazard policies and procedures
- standard operating procedures
- safety procedures
- work instructions
- personal protective clothing and equipment procedures.

Designated personnel for emergency situation referrals may include:

- employer
- supervisor
- employees elected as emergency team leader
- other personnel with emergency team leader responsibilities.

Emergency issues that may need to be raised by workers with designated personnel may include:

- recognition of different types of emergencies
- problems encountered in control measures and implementation
- observation on injury and/or incident occurred in the workplace.

Emergency control includes:

- stop buttons/bars

Emergency signals include:

- visual - flashing lights
- auditory - alarms

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to recognise potential situations and then in implementing the appropriate action. The emphasis should be on the ability to follow proper procedures in order to save oneself from possible injury and/or death.

Consistent performance should be demonstrated. In particular look to see that:

- emergency situations are recognised and communicated promptly
- emergency procedures are understood and followed.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems that may have been generated from the past incident history of the plant and incidents on similar plants around the world.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions that will be used to probe the reasoning behind the observable actions.

Other assessment advice

It is expected that this competency may be applicable in combination with other industry, occupation or workplace-specific competencies. In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of the emergency response procedures sufficient to recognise emergency situations and then determine the appropriate action.

Knowledge of the relevant OHS and environmental requirements, and enterprise standard operating procedures, is required along with an ability to implement them in a manner that is relevant to emergency response practices.

Competence includes the ability to:

- identify location of emergency signals on machines and/or at the worksite
- identify emergency situations in which there is no mechanical/electronic signal
- report identified emergency signals/situations to the designated person
- identify the emergency leader
- follow emergency procedures.

Evidence of knowledge of all relevant workplace procedures will include:

- emergency, fire and accident procedures
- procedures for the use of personal protective clothing and equipment
- enterprise standard operating procedures (SOPs)

as is relevant to the required response to the emergency situation.

Prerequisites

This unit has no prerequisites.

PMAOHS200B

Participate in workplace safety procedures

Unit Descriptor

On completion of this unit, the worker will be able to accurately identify occupational health and safety hazards, and assess risk, as well as follow instructions and procedures in the workplace with minimal supervision. The worker will also be capable of participating in and contributing to OHS management issues.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Identify hazards and assess risk. | 1.1 Identify hazards in the work area before and during work
1.2 Identify controls for these hazards from procedures
1.3 Assess effectiveness of controls within the scope of authority
1.4 Identify and report remaining risk. |
| 2. Follow procedures for risk control. | 2.1 Control risks when working under minimal supervision by following workplace procedures.
2.2 Select, use and maintain relevant PPE. |
| 3. Follow emergency procedures | 3.1 Recognise emergency situations
3.2 Take appropriate initial emergency action
3.3 Follow procedures for dealing with a range of emergencies |
| 4. Initiate suggestions to enhance task/job-specific safety. | 4.1 Raise task and/or job specific OHS issues with appropriate people in accordance with workplace procedures
4.2 Contribute to <u>participative arrangements</u> for OHS management in the workplace within organisational procedures and the scope of responsibilities and competencies
4.3 Provide input to minimise hazards in work area in line with organisational OHS procedures
4.4 Provide input to opportunities for development of work group's competencies in relation to OHS
4.5 Support the implementation of procedures to control risks using the hierarchy of control and in accordance with organisational procedures
4.6 Report to appropriate people in accordance with workplace procedures when non-routine hazards arise. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

This unit of competency describes OHS requirements applicable for all workers whose work involves the use of workplace policies and procedures to maintain a safe work environment for themselves and others.

This competency covers process manufacturing plants which may involve workplace hazards such as:

- chemicals and hazardous materials
- gases and liquids under pressure
- moving machinery
- materials handling
- working at heights, in restricted or confined spaces, or in environments subjected to heat, noise, dusts or vapours.

Emergencies include:

- incidents leading to serious injury and/or property damage
- fires
- chemical spills
- bomb scares.

Enterprise policies and procedures include those which directly or indirectly cover OHS issues, such as:

- hazard policies and procedures
- standard operating procedures
- safety procedures
- work instructions
- emergency, fire and accident procedures
- personal protective clothing and equipment procedures.

It is expected that workers will be provided with clear directions, information, instruction, training and appropriate supervision regarding the relevant State/Territory OHS legislation, codes of practice, relevant industry standards, workplace procedures and work instructions.

Designated personnel for OHS referrals may include:

- employer
- supervisor
- employees elected as OHS representatives
- other personnel with OHS responsibilities.

OHS issues which may need to be raised by workers with designated personnel may include:

- recognition of hazards and assessment of risk
- problems encountered in risk control measures and implementation
- observation of an injury and/or incident

- clarification on understanding of OHS policies and procedures.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Consistent safe working is the critical aspect for which evidence should be sought.

It is essential that the workplace OHS system is understood and that the importance of critical procedures is known. Competence must be demonstrated in the ability to recognise potential situations requiring action and then in implementing appropriate corrective action.

Consistent performance should be demonstrated. In particular look for evidence of:

- understanding of all relevant workplace procedures including:
 - hazard policies and procedures
 - emergency, fire and accident procedures
 - procedures for the use of personal protective clothing and equipment
 - hazard identification and risk assessment procedures
 - job operating procedures and work instructions
- knowledge and understanding of:
 - hazards and potential risks in the workplace
 - the consultation processes, either general or specific to OHS
 - occupational health and safety information
- knowledge of specific hazard policies and use of hazard procedures (eg, housekeeping and inspections).

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and extreme situations, which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

It is expected that this competency may be applicable in combination with other industry, occupation or workplace-specific competencies. In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of the workplace OHS system and relevant industry standards sufficient to participate in OHS activities within the scope of their responsibilities and competencies.

Competence includes the ability to:

- apply and describe:
 - identification of hazards
 - identification of standard controls for the hazards
 - simple evaluation of the effectiveness of the controls
 - awareness of the need for further action
 - rights and responsibilities of employees under the OHS legislation
- locate, understand and follow workplace OHS procedures
- interpret signs and symbols including emergency alarms
- recognise hazards common to the industry and in their own workplace
- sources of OHS information within the workplace
- apply and explain:
 - other management systems and procedures for occupational health and safety
 - the hierarchy of control

Prerequisites

This unit has no prerequisites.

PMAOHS300B Implement and monitor OHS policies and procedures for a work group

Unit Descriptor

On completion of this unit, the worker will be able to accurately implement and monitor defined OHS policies and procedures for a work group or area, within their scope of responsibilities. The worker will also be capable of coaching the team in participating and contributing to OHS management issues. The worker will be able to perform duties that are required of a safety committee member or safety representative in an organisation. Typically this worker might be a team leader or on the OHS committee.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Communicate OHS information for coworkers in team. | 1.1 Accurately and clearly explain to the work group basic OHS rights, responsibilities and requirements
1.2 Provide, in a readily accessible manner, information on the relevant enterprise OHS policies, procedures and programs, and accurately and clearly explain them to the work group
1.3 Regularly provide relevant information about identified hazards and the outcomes of risk assessment and risk control procedures, and accurately and clearly explain them to the work group. |
| 2. Coach coworkers in team. | 2.1 Establish mutual support groups, eg, buddy system, to encourage effective development of individual and group competencies in OHS
2.2 Provide personal encouragement and assistance to team members to contribute to the management of OHS at the workplace. |
| 3. Facilitate the consultative process. | 3.1 Deal with and promptly resolve issues raised through consultation or refer to the appropriate personnel for resolution in accordance with workplace procedures
3.2 Seek input from work group on OHS issues and potential changes to process, procedures or work place
3.3 Encourage and use feedback from individuals and teams to identify and implement improvements in the management of OHS
3.4 Promptly inform the work group of the outcomes of consultation over OHS issues. |

- 4. Implement and monitor enterprise procedures for identifying hazards, and assessing and controlling risk.
 - 4.1 Implement and monitor adherence to work procedures to identify hazards and assess and control risk
 - 4.2 Monitor existing risk control measures and report results regularly
 - 4.3 Access internal and external sources of relevant OHS information
 - 4.4 Evaluate and identify inadequacies in existing risk control measures in accordance with the hierarchy of control, and report to designated personnel
 - 4.5 Identify inadequacies in resource allocation for implementation of risk control measures and report to designated personnel
 - 4.6 Identify actual/potential inadequacies in procedures and report to designated personnel
 - 4.7 Identify actual/potential inadequacies in individual or team competency and report to designated personnel.

- 5. Maintain and use OHS records.
 - 5.1 Accurately and legibly complete OHS records for work area, in accordance with workplace requirements for OHS records and legal requirements for the maintenance of records of occupational injury and disease
 - 5.2 Use aggregated information from the area's OHS records to identify hazards and monitor risk control procedures within work area according to procedures and within scope of responsibilities and competencies.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	3
Collecting analysing and organising information	2
Planning and organising activities	3
Working with others and in teams	3
Using mathematical ideas and techniques	2
Solving problems	3
Using technology	2

RANGE STATEMENT

This unit of competency describes OHS requirements applicable for all workers who are responsible for the organisation of occupational health and safety arrangements for a work group or area, including coaching.

This competency covers process manufacturing plants which may involve workplace hazards such as:

- chemicals and hazardous materials
- gases and liquids under pressure
- moving machinery
- materials handling
- working at heights, in restricted or confined spaces, or environments subjected to heat, noise, dusts or vapours.

Enterprise policies and procedures include those which directly or indirectly cover OHS issues, such as:

- hazard policies and procedures
- standard operating procedures
- safety procedures
- work instructions
- emergency, fire and accident procedures
- personal protective clothing and equipment procedures.

OHS records include:

- hazard and incident reports
- logs/logs sheets
- inspection/start up/shut down checklists
- injury reports
- maintenance records

Sources of relevant OHS information include:

- external
 - OHS legislation and codes of practice
 - industry standards for materials, process, equipment etc
 - NOHSC/SA/ISO standards
 - OHS authorities eg WorkCover
 - unions and industry associations
 - internet, journals, magazines
 - manufacturer's/suppliers manuals/specifications
- internal
 - policies and procedures
 - JSA, risk assessments, HAZOPs
 - hazard, incident and injury records
 - training resources
 - employee information brochures, newsletters etc
 - OHS reports such as inspections, technical reports.

It is expected that workers will be provided with clear directions, information, instruction, training and appropriate supervision regarding the relevant State/Territory OHS legislation, codes of practice, relevant industry standards, workplace procedures and work instructions.

Designated personnel for OHS referrals may include:

- employer
- supervisor
- employees elected as OHS representatives
- other personnel with OHS responsibilities.

Participative arrangements for OHS management may involve:

- following OHS procedures
- information sessions on existing or new issues
- meetings between employer and employees or representatives
- access to relevant workplace information
- use of clear and understandable language.

OHS issues which may need to be raised by workers with other workers and/or designated personnel may include:

- recognition of hazards and assessment of risk
- problems encountered in risk control measures and implementation
- observation following an injury and/or incident
- clarification of understanding of OHS policies and procedures.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

It is essential that the workplace OHS system and State OHS regulations be understood and that the importance of critical procedures is known. Competence must be demonstrated in the ability to:

- communicate effectively with the work group(s)
- proactively promote consultation and participation in the OHS processes
- participate in decisions which impact on OHS for their workgroup.

Consistent performance should be demonstrated. In particular look to see that the required level includes a working knowledge of all relevant workplace procedures. Look to see knowledge and understanding of:

- specific hazard policies and the use of hazard procedures (eg, identify, assess, control)
- the consultation processes, either general or specific to occupational health and safety
- occupational health and safety information
- occupational health and safety record keeping
- counselling, disciplinary and issue resolution processes.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and extreme situations that may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions that will be used to probe the reasoning behind the observable actions.

Other assessment advice

It is expected that this competency may be applicable in combination with other industry, occupation or workplace-specific competencies. In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of the workplace OHS system and State OHS regulations, codes of practice and relevant industry standards sufficient to implement and monitor OHS activities for a work group or area within the scope of their responsibilities and competencies.

In these industries which are characterised by high potential hazard, employees need to exercise their duty of care responsibilities not only within the general OHS Acts and regulations, but also within those State and national standards applying to hazardous substances, dangerous goods and major hazards.

Competence includes the ability to:

- apply and describe:
 - identification of hazards in the workplace and standard controls
 - assessment of risk and implementation of risk control measures
 - rights and responsibilities of employees under OHS legislation
 - obligations of employers under the OHS legislation
 - legislative requirements for information and consultation
 - arrangements for consultation within the workplace
 - locate, understand and follow workplace OHS procedures
 - identify and communicate with all key personnel in the organisation
 - identify and access relevant sources of information
 - interpret OHS data such as tables of numbers and graphs
- apply and explain:
 - other management systems and procedures for occupational health and safety
 - literacy levels and communication skills of employees in the area of responsibility
 - the hierarchy of control.

Prerequisites

This unit **has** the prerequisite of:

PMAOHS200A Participate in workplace safety procedures.

PMAOHS400B

Contribute to workplace OHS management system

Unit Descriptor

On completion of this unit, the worker will be able to contribute to the workplace occupational health and safety management system and ensure that the workplace is, so far as is practicable, safe and without risks to the health of workers.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Establish and review procedures for identifying hazards, and assessing and controlling risk. | <ul style="list-style-type: none"> 1.1 Access current, relevant information on legislative and industry requirements for hazard identification and risk assessment and control 1.2 Identify gaps in procedures 1.3 Develop workplace procedures to meet requirements 1.4 Involve relevant stakeholders in procedures development 1.5 Review the procedures on a regular basis by consulting stakeholder groups for feedback 1.6 Inform relevant stakeholders and other work groups of any changes and implement changes in the procedures. |
| 2. Establish and review incident procedures | <ul style="list-style-type: none"> 2.1 Identify legal and organisation requirements 2.2 Identify gaps in procedures 2.3 Develop workplace procedures for dealing with incidents 2.4 Review the procedures by consulting stakeholder groups for feedback 2.5 Inform relevant stakeholders and other work groups of any changes and implement changes in the procedures. |
| 3. Implement and review training program from an OHS perspective. | <ul style="list-style-type: none"> 3.1 Identify the legal, organisational and practical requirements for OHS training 3.2 Evaluate the workplace training program for OHS gaps 3.3 Review the program on a regular basis by consulting stakeholders and work groups for feedback 3.4 Take appropriate action to incorporate relevant feedback into the revised program 3.5 Inform relevant work groups of any changes and implement changes in the OHS training program. |
| 4. Implement and review OHS recording system. | <ul style="list-style-type: none"> 4.1 Identify the legal and organisational requirements for OHS records 4.2 Evaluate the workplace OHS recording system for gaps 4.3 Review the system on a regular basis by consulting stakeholders and work groups for feedback 4.4 Incorporate relevant feedback into the revised system in consultation with stakeholders 4.5 Inform relevant work groups of any changes and implement changes in the management of OHS records. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	3
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	3
Using mathematical ideas and techniques	3
Solving problems	3
Using technology	3

RANGE STATEMENT

This competency unit covers live, real time and ongoing routine hazard identification and risk assessment.

This unit of competency describes OHS requirements applicable for those with responsibilities for contributing to the workplace occupational health and safety management system within a work group or area. This may be as a team leader or as a supervisor. Roles and responsibilities will vary from enterprise to enterprise.

Review of activities may include review of written reports, performance appraisal or auditing procedures.

Competence is demonstrated in the context of an enterprise where the OHS system with related policies, procedures and programs is already established. The role will relate to the maintenance and upkeep of the system.

This competency covers process manufacturing plants which may involve workplace hazards such as:

chemicals and hazardous materials

gases and liquids under pressure

moving machinery

materials handling working at heights, in restricted or confined spaces, or environments subjected to heat, noise, dusts or vapours.

Sources of relevant OHS information include:

- external
- OHS legislation and codes of practice
- industry standards for materials, process, equipment etc
- NOHSC/SA/ISO standards
- OHS authorities eg WorkCover
- unions and industry associations
- internet, journals, magazines
- manufacturer's/suppliers manuals/specifications
- internal
- policies and procedures
- JSA, risk assessments, HAZOPs
- hazard, incident and injury records
- training resources
- employee information brochures, newsletters etc
- OHS reports such as inspections, technical reports.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

It is essential that the workplace OHS system and State OHS regulations be understood and that the importance of critical procedures is known. Competence must be demonstrated in the ability to recognise and analyse potential situations that require action and then in implementing appropriate corrective action. There should be an underpinning understanding of the duty of care responsibilities of employer and employees.

Consistent performance should be demonstrated. In particular look to see that the required level includes a working knowledge of all relevant workplace procedures. Look to see knowledge and understanding of:

- the requirements that the workplace procedures should meet
- the consultation processes, either general or specific to occupational health and safety
- training and assessment of training needs
- hazard identification, risk assessment and risk control methods
- the need for specific hazard management policies and procedures
- types and sources of occupational health and safety information
- occupational health and safety record keeping systems
- the system for and process of maintenance of plant and equipment
- OHS issue resolution processes.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and extreme situations that may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions that will be used to probe the reasoning behind the observable actions.

Other assessment advice

It is expected that this competency may be applicable in combination with other industry, occupation or workplace-specific competencies. In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of the workplace OHS system and State OHS regulations, codes of practice and relevant industry standards sufficient to contribute to the workplace OHS management system for a work group or area within the scope of their responsibilities and competencies.

In these industries which are characterised by high potential hazard, team leaders and supervisors must be aware that employees need to exercise their duty of care responsibilities. This will be not only within the general OHS Acts and regulations, but also within those State and national standards applying to hazardous substances, dangerous goods and major hazards.

Competence includes the ability to:

- apply and describe:
- identification of hazards common to the industry and standard controls
- rights and responsibilities of employees under OHS legislation
- obligations of employers under the OHS legislation
- legislative requirements for information and consultation
- legislative requirements for record keeping and reporting
- appropriate consultation arrangements for the industry
- numeracy, literacy and other communication skills of work group(s)
- duty of care of employers and employees
- the hierarchy of control
- access and use current OHSMS
- access and interpret training records
- identify and communicate with all key personnel in the organisation
- identify and access relevant sources of information.

A knowledge of related management systems eg purchasing and IT is required.

Prerequisites

This unit **has** the prerequisite of:

- PMAOHS300A Implement and monitor OHS policies and procedures for a work group.

PMAOHS401B

Assess risk

Unit Descriptor

On completion of this unit, the worker will be able to identify hazards and operability problems and then analyse them by hazard analysis techniques to assess risk. A team with a broad knowledge of the system and its operation will carry out the analysis. It is expected that the risk assessment processes are already defined for the enterprise and that the risk acceptance criteria have already been established. The team will be steered by engineering experts or risk assessment specialists in the industry.

In a typical scenario the worker will take an active role in a HAZOP or similar methodology. They are not expected to lead the HAZOP. This unit is not restricted to HAZOPs and may be applied to other methodologies requiring similar competency.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Identify hazards and potential operability problems. | 1.1 Contribute to the compiling of a system description of all the machinery, equipment, operations, products and materials relevant to the everyday working procedures of the facility
1.2 Contribute to the compiling of a checklist containing process parameters (primary key words) and guide words (secondary key words) relevant to the system
1.3 Identify hazards, existing control measures and potential operability problems or breakdowns in control measures using the compiled system descriptions and the checklist. |
| 2. Assess impact of risk and determine alternative strategies. | 2.1 Screen for causes of deviations and establish consequences
2.2 Determine alternative strategies for action in relation to each deviation within the range of competency and responsibility
2.3 Review, clarify and/or analyse risk information to determine its relevance and reliability depending upon the task assigned, level of competency and area of responsibility. |
| 3. Assess risk information against established risk criteria in risk management plan. | 3.1 Check risk acceptance criteria for any changes over past period
3.2 Compare risk information against risk acceptance criteria and procedures to assess acceptability of risk
3.3 Conduct liaison with other internal departments to assess impact on business if applicable
3.4 Document findings according to company policies and procedures. |

- 4. Develop a risk register.
 - 4.1 Develop a risk assessment chart for each system studied containing deviation, cause, consequence, control measures and action
 - 4.2 Develop action plan for implementation of control measures including any changes to procedures
 - 4.3 Establish or review the procedures by consulting relevant/different work groups
 - 4.4 Inform relevant work groups of any changes and implement, within area of responsibility, changes in the procedures.
 - 4.5 Monitor effectiveness of the control measures including revised procedures

- 5. Establish and maintain procedures for identifying hazards, and assessing and controlling risk.
 - 5.1 Identify and develop procedures for routine hazard identification, assessment and control of risks
 - 5.2 Address identification of all hazards at the planning, design and evaluation stages of any changes in the workplace to ensure that new hazards are not created by the proposed changes
 - 5.3 Develop and maintain procedures for selection and implementation of risk control measures in accordance with the hierarchy of control
 - 5.4 Identify inadequacies in existing risk control measures in accordance with the hierarchy of control and, within area of responsibility, promptly provide resources enabling implementation of new measures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	3
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	3
Using mathematical ideas and techniques	3
Solving problems	3
Using technology	3

RANGE STATEMENT

This unit will be completed as a specialist unit (eg, by plant technicians) requiring technical knowledge.

The aim of this competency unit is to apply a methodical examination of the system and its elements to identify hazards and the states or conditions where there may be loss of control of the hazard and the resultant consequences. The results of the hazard analysis should be expressed clearly and concisely, and include where possible tables and diagrams. Team members would contribute their understanding of the process and particularly the operational aspects, and then carry out whatever tasks are assigned to them by the analysis team.

While this competency aims to enable a person to identify hazards and assess risk through a systematic approach, more than 80% of recommendations can be operability problems and are not, of themselves, hazards. Although hazard identification should be the main focus, operability problems should be identified to the extent that they have the potential to lead to a breakdown in hazard controls resulting in a health, safety or environmental violation or have a negative impact on profitability.

The degree of depth of a checklist should be dependent on the knowledge of the system at the time the study is carried out. This technique can therefore be applied at any stage of the project/process lifecycle.

Screening for deviations includes accessing internal and external data that may provide information about previous incidents or warnings of incidents. Sources of such information may include:

- internal hazard and incidents reports, maintenance records, audit reports
- reports from similar plants, industry bodies, regulators, journals etc of actual incidents or reports that have relevance to the situation being analysed

Examples of risk assessment tools may range from relatively simple to more complex HAZOP analyses and other methodologies requiring similar competency.

This competency covers process manufacturing plants which may involve workplace hazards such as:

- chemicals and hazardous materials (short term and long term effects)
- gases and liquids under pressure
- moving machinery
- materials handling
- working at heights, in restricted or confined spaces, or

environments subjected to heat, noise, dusts or vapours.

Hazardous events may include:

- incidents with a potential for injury
- fires, explosions
- chemical spills
- bomb scares.

Specific process parameters (primary key words) relevant to the system may include:

- flow
- temperature
- pressure
- relief
- instrumentation
- sampling
- addition
- safety
- reaction
- reduce (grind, crush)
- absorb
- isolate
- vent
- start-up
- shutdown
- composition
- phase
- level
- corrosion
- erosion
- services
- utilities
- maintenance/maintain
- inserting
- purging
- contamination
- separate (settle, filter, centrifuge)
- mix
- drain.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations that will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

It is essential that the workplace systems and the importance of critical procedures are known.

Consistent performance should be demonstrated. In particular look to see that the required level includes a working knowledge of all relevant workplace procedures. Look to see that the technique used:

- enables identification of hazards and how hazard controls may break down
- enhances the understanding risks and it may be reduced
- permits the modeling and evaluation of a wide range of failure modes
- enables the analysis to be carried out in a manner that is auditable, repeatable and verifiable
- is usable by other staff
- is appropriate to the system operating in the given domain
- gives valid results from data of the quality and quantity actually available
- is appropriate for the particular lifecycle phase at which it is to be applied
- provides standard proformas to support the technique
- has a rational technical basis which may include reference to national or international standards, defense standards or published reference books.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and extreme situations that may have been generated from the past incident history of the plant, incidents on similar plants around the world, past hazard analysis activities and similar sources.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions that will be used to probe the reasoning behind the observable actions.

Other assessment advice

It is expected that this competency may be applicable in combination with other industry, occupation or workplace-specific competencies. In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of the workplace systems, machinery, equipment, operations, products and materials, and standard operating procedures sufficient to contribute to the recognition and analysis of potential situations requiring action and then in suggesting suitable, appropriate corrective actions within the range of their responsibilities and competencies.

The knowledge of hazards as sources of energy, the ability to differentiate between a hazard and risk and an understanding of the concept of risk as a measure of uncertainty are important underpinning knowledge for this competency.

Competence includes the ability to:

- apply and describe:
- relevant OHS legislation related to risk assessment including documentation and retention of risk assessment documentation
- sources of information for hazard analysis
- identification of hazards and operability problems in the workplace
- assessment of the level of risk
- the development of a risk register
- locate and understand workplace OHS procedures
- locate and understand standard operating procedures (SOPs) within the range of responsibilities
- locate manufacturers' design and specification details of machinery, equipment, products and materials within the range of responsibilities.
- apply and explain:
- management systems and procedures for occupational health and safety
- how other functional areas (purchasing, contractor management, maintenance, HR, IT etc) may impact on the OHS management system
- the hierarchy of control.

Prerequisites

This unit **has no** prerequisites.

PMAOHS503A

Maintain the workplace OHS management system

Unit Descriptor

This competency covers the ongoing maintenance of the OHS management system (OHSMS) within the area of managerial responsibility, in order to ensure that the workplace is, so far as is practicable, consistently safe and without risks to the health of employees. It assumes that the OHSMS has been developed by persons with the relevant specialist knowledge and skills.

This unit replaces PMA500A Manage workplace OHS management system and PMA501A Evaluate and improve workplace OHS management system.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Manage OHS information in the workplace | <ul style="list-style-type: none"> 1.1 Take action to ensure that requirements for OHS record keeping and reporting are implemented according to workplace procedures and legislative requirements 1.2 Access sources of OHS information and evaluate for application to the workplace 1.3 Collect and collate data and information to provide information to managers and stakeholders on OHS requirements, trends and risk controls |
| 2. Support implementation of OHSMS | <ul style="list-style-type: none"> 2.1 Determine OHS priorities in consultation with appropriate managers and stakeholders 2.2 Identify OHS training needs for implementation and maintenance of the OHSMS 2.3 Develop action plans taking account of priorities and training needs 2.4 Monitor achievement of action plans and update plans accordingly |
| 3. Support OHS participative arrangements | <ul style="list-style-type: none"> 3.1 Ensure OHS information and documentation is understandable and accessible to all 3.2 Promptly address OHS issues that may arise within area of authority or refer to appropriate person 3.3 Provide information about the outcomes of OHS consultation in a manner that is accessible to all |
| 4. Collect data to evaluate currency of OHSMS. | <ul style="list-style-type: none"> 4.1 Identify, in consultation with stakeholders and, as required expert advisors, internal data and information that provides relevant and reliable information on the performance of the OHSMS 4.2 Conduct workplace inspections on a regular basis 4.3 Identify workplace OHS implications of any changes to legislation 4.4 Identify any OHS implications to proposed changes to the workplace 4.5 Take action to arrange an OHSMS audit |

- 5. Analyse data and information to identify areas for improvement
 - 5.1 Assess compliance of OHSMS with OHS legislation
 - 5.2 Analyse information collected to identify areas for improvement
 - 5.3 Consult with stakeholders, key personnel and, as required, OHS advisors
 - 5.4 Document and communicate outcomes of analysis to key personnel and stakeholders in an easily understood format
 - 5.5 Recognise limits of own expertise and seek appropriate advice.

- 6. Initiate and maintain improvements.
 - 6.1 Determine priorities for OHS in consultation with stakeholder
 - 6.2 In consultation with stakeholders, develop an OHS plan with responsibilities and time frames
 - 6.3 Identify and source resources required for implementation of plan
 - 6.4 Monitor achievement against plan
 - 6.5 In consultation with stakeholders, monitor effectiveness of modifications to OHSMS on an ongoing basis.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	3
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	3
Using mathematical ideas and techniques	3
Solving problems	3
Using technology	3

RANGE STATEMENT

This unit of competency describes OHS requirements applicable for those with managerial responsibilities for maintaining and improving an established OHSMS within the enterprise. This may be as a worker or as an owner of a business. This competency assumes that the OHSMS has been established by others, either internal or external and that expert advice is available either internally or externally.

The competency is to be exhibited within the area of managerial responsibility, which may be an entire enterprise or department of an enterprise. Roles and responsibilities will vary from enterprise to enterprise.

While relevant positions for maintaining and improving the OHSMS will include managers, occupational health and safety officers/managers it should be quite clear that the legal responsibility for OHS rests with the line managers.

Analysis of data may include statistical analysis, qualitative analysis or informal review

This competency covers process manufacturing plants which may involve workplace hazards such as:

- chemicals and hazardous materials
- gases and liquids under pressure
- moving machinery
- materials handling
- working at heights, in restricted or confined spaces, or environments subjected to heat, noise, dusts or vapours.

OHS record keeping and reporting requirements include those under:

- Hazardous substances and dangerous goods legislation
- OHS legislation to report serious incidents and injuries and keep records of risk assessments

Other records include:

- Hazard and incident reports, investigation reports
- Completed workplace inspection checklists and reports
- External or internal reports
- Minutes of meetings.

Sources of OHS information may be external and include:

- OHS legislation, codes of practice and Australian and International standards
- OHS regulators and National Occupational Health and Safety Commission
- industry bodies
- internet sites, journals and newsletters

- OHS policies and procedures
- Manufacturers' manuals
- Risk assessments, JSA's, workplace inspections
- MSDSs and registers
- Hazard and incident reports

EVIDENCE GUIDE

Assessment context and methods

The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. .

Simulation may be required to allow for timely and practical assessment of parts of this unit of competency. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which may be assessed in a variety of ways including questioning, analysis of data, preparation of reports, minutes of meetings chaired.

Critical aspects

It is essential that the obligations under the state OHS legislation and the workplace OHSMS are understood. Competence must be demonstrated in the ability to interact with the workforce to maintain the process that comprise the OHSMS and to access and analyse information to identify areas for improvement, develop appropriate improvement strategies and apply a quality improvement process to implement and monitor change.

Consistent performance should be demonstrated. In particular look to see that the required level includes a working knowledge of the workplace OHSMS. Look to see knowledge and understanding of:

- OHS responsibilities of all levels in the workplace
- the consultation processes, either general or specific to occupational health and safety
- hazard identification and risk assessment
- implementation of risk control measures by applying the hierarchy of control
- new and relevant occupational health and safety information
- occupational health and safety record keeping
- OHS issue resolution legislative requirements for consultation prior to the implementation of change
- sources and types of information that provide realistic information on the performance of the OHSMS
- techniques for analysing OHS data including simple statistical analysis and graphing of trends
- types of internal and external change that may impact on OHS

These aspects may be best assessed in a realistic workplace. Where this is difficult to access then steps should be taken to arrange access to realistic data and a visit to a workplace. Scenarios and case studies may provide a suitable adjunct. These assessment activities should include a range of problems that may be encountered when maintaining reviewing and implementing improvement to the OHSMS.

Resource implications

Assessment will require access to OHS and related data and information together with access, preferably over an extended period of time, to an operating plant and the workgroup. A bank of scenarios/case studies/what ifs and a bank of questions would be useful to probe the reasoning behind the observable actions.

Other assessment advice

It is expected that this competency might be applicable in combination with other industry, occupation or workplace-specific competencies. In all plants it may be appropriate to assess this unit concurrently with relevant teamwork, communication or quality improvement units.

Essential knowledge

Knowledge and understanding of the workplace OHSMS and State OHS regulations, codes of practice and relevant industry standards sufficient to maintain, evaluate and improve the workplace OHS management system within the scope of their responsibilities and competencies.

Management must be aware that, while employees have OHS responsibilities, line managers are ultimately responsible, under both OHS legislation and common law duty of care, for the safety of the workplace, including ensuring that employees comply with documented work procedures. This legislation includes general OHS legislation as well as that for hazardous substances, dangerous goods and major hazard sites.

Competence in this unit includes the ability to apply a working knowledge of the workplace, relevant OHS legislation and OHSMS to:

- maintain an OHSMS already defined and established
- identify types of data and information that will provide information on the effectiveness of the OHSMS in minimising risk
- analyse the data to identify areas for improvement in elements of the OHSMS including communication and consultation, reporting and hazard identification, risk assessment and risk control,
- develop strategies for improvement in the OHSMS
- apply the hierarchy of control to recommend actions to minimise risk

Prerequisites

This unit **has** no prerequisites

PMAOHS510B

Manage risk

Unit Descriptor

This unit of competency covers the development, implementation and evaluation of a risk management plan for the organisation. It incorporates an assessment of all potential risks facing the organisation and the development of strategies and plans to mitigate all risk situations through elimination, isolation or protection.

This unit was based on the Australian Risk Management standard AS/NZS4360, 1999 and as such may be applied quite broadly. However, it is probably best applied to health, safety and environment risks and the business and other risks consequent on them. For general business and finance risk units refer to the Finance Training package FNB04.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|------------------------------------|--|
| 1. Develop risk management plan. | 1.1 Analyse and interpret strategic position and policy on <u>risk</u> management
1.2 Ensure that an audit is conducted to identify <u>risk</u> management context and potential areas of <u>risk</u>
1.3 Analyse organisational capability to reduce/control the likelihood of both incidents and consequences
1.4 Evaluate the <u>risk register</u> to ensure it contains relevant information regarding sources of risk, scenarios for loss of control of the risk, possible consequences, risk controls and action
1.5 Establish or review <u>risk</u> management policies
1.6 Evaluate the requirement for training/education for all groups and individuals
1.7 Identify access to external specialist assistance
1.8 Establish <u>procedures</u> for ongoing identification of <u>hazards</u> , and assessment and control of <u>risk</u>
1.9 Consult stakeholders in the development of the plan |
| 2. Implement risk management plan. | 2.1 Review, in consultation with stakeholders, the ranking of risks and the classifications of levels of risk
2.2 Place on a monitor/review watch list <u>risks</u> classified as low/acceptable
2.3 Implement processes to eliminate wherever practicable <u>risks</u> that are unacceptable
2.4 Implement processes to mitigate/minimise <u>risks</u> that cannot be eliminated in accordance with the <u>risk</u> management plan and the hierarchy of control
2.5 Document strategies for <u>risk</u> minimisation. |

- 3. Evaluate risk management plan.
 - 3.1 Establish procedures to regularly review risk management activities
 - 3.2 Ensure stakeholders have input to the review
 - 3.3 Examine activities that do not achieve their objective/ performance outcomes to determine cause
 - 3.4 Identify targets for improvement and update plan
 - 3.5 Establish evaluation of risk management as a key component of all projects/activities.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	3
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	3
Using mathematical ideas and techniques	2
Solving problems	3
Using technology	2

RANGE STATEMENT

Persons and organisations engaged in assessing managers in this unit need to themselves have appropriate qualifications and experience in risk management as well as workplace assessment.

Risk management is the systematic process that is directed towards identifying hazards, assessing the risk and developing controls to minimise the risk and monitor the effectiveness of the controls (and taking action as required).

Relevant groups and individuals refers to those personnel who have knowledge about the issue being dealt with and the expertise to assist the decision making process.

External specialist assistance refers to any group or individual in the community who has the expertise to assist the organisation to deal with any event/incident which may occur.

Risks may include:

- injury or disease
- environmental
- product failure
- financial/economic loss/failure
- damage to property/plant/equipment
- industrial disputes
- professional incompetence
- natural disasters
- security failure (including criminal or terrorist activities)
- equipment/system failures
- political events.

Legislation, codes and national standards relevant to the workplace may include:

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to OHS, environmental issues, EEO, industrial relations and anti-discrimination
- relevant industry codes of practice.

Risk ranking is a highly subjective process of rating risks according to their severity and likelihood. Common ranking systems are based on matrices or nomograms.

Procedures to review the risk management plan may include:

- internal or external audit
- focus groups
- hazard analysis processes
- investigation reports

- review of data such as hazard and incident reports, maintenance records, production records

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or Federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency.

Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulations may also include the use of case studies/scenarios and role plays. Visits to other workplaces and workgroups may also be useful

This unit of competency requires a significant body of knowledge which may be assessed in a variety of ways including questioning and the use of what if scenarios, discussion groups, review of plans and reports.

The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. .

Simulation may be required to allow for timely and practical assessment of parts of this unit of competency. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which may be assessed in a variety of ways including questioning, analysis of data, preparation of reports

Critical aspects

Competence must be demonstrated in the ability to develop, implement and evaluate the development of plans to eliminate, isolate or protect people (and/or equipment) in the event of the potential negative event occurring. The emphasis should be on the ability to avoid/eliminate critical incidents rather than on recovery from a disaster.

Consistent performance should be demonstrated. In particular look for evidence of:

- communication/consultation skills to ensure all relevant groups and individuals are briefed, consulted and have an opportunity to input
- negotiation skills to mediate, negotiate to obtain consensus between individuals/groups on the risk management plan and (where required and appropriate) categorisation of risks
- ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities
- ability to apply a systematic process to development and documentation of plan and implementation of actions.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and extreme situations that may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities (eg, HAZOP) and similar sources.

Resource implications

Assessment will require access to a work group over an extended period of time, or a suitable method of gathering evidence over a range of situations.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant OHS or environmental management units or teamwork and communication units.

Essential knowledge

The person must demonstrate understanding of specialised knowledge with depth in some areas. Required knowledge is to be limited to that which is sufficient to perform particular risk management functions. Competence includes the ability to:

- apply and explain:
- relevant legislation from all levels of government that effects business operation, especially in regard to OHS and environmental issues, EEO, industrial relations and anti-discrimination
- the legal implications of deeming identified risks as acceptable
- strategic, tactical and operational plans of the organisation
- legal requirements for operating the business relevant to the area of responsibility
- relevant awards and industrial agreements
- workplace standards for OHS and environmental management

Prerequisites

This unit **has** the prerequisite of:

- PMAOHS401A Assess risk.

PMAOHS601A

Establish workplace OHS management system

Unit Descriptor

This competency covers the establishment and maintenance of the OHS management system (OHSMS) at the senior management level, in order to meet legislative requirements and to ensure that the workplace is, so far as is practicable, safe and without risks to the health of employees.

Prerequisite Unit(s)

This unit replaces PMAOHS600A Ensure a safe workplace.

Unit Sector

PMAOHS503A Maintain the workplace OHS management system

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Identify needs of the OHSMS | <ul style="list-style-type: none"> 1.1 Analyse the workplace to identify needs and workplace factors that may impact on the design of the OHSMS 1.2 Clarify OHS legal obligations in relation to the specific workplace 1.3 Review relevant standards relating to OHSMS 1.4 Identify links with other functional areas and management systems 1.5 Seek input from stakeholders on the design of the OHSMS |
| 2. Establish the framework for the OHSMS | <ul style="list-style-type: none"> 2.1 Ensure OHS responsibilities and duties are documented and accountability processes are in place 2.2 Identify and source financial and human resources required for the operation of the OHSMS 2.3 Establish or review OHS policies and procedures 2.4 Ensure implications of any proposed changes to the workplace are identified and addressed 2.5 Recognise limits of own professional expertise and consult OHS specialists as necessary |
| 3. Establish and maintain participative arrangements for the management of OHS. | <ul style="list-style-type: none"> 3.1 Establish and maintain appropriate participative processes with employees and their representatives in accordance with relevant OHS legislation and industry standards 3.2 Provide information on OHS to employees in a format that is readily accessible and understandable 3.3 Promptly and effectively deal with and resolve issues raised through participation and consultation in accordance with procedures for issues resolution 3.4 Provide information about the outcomes of participation and consultation in a manner accessible to employees. |

PMAOHS601A Establish workplace OHS management system

- 4. Establish and maintain risk management processes
 - 4.1 Establish or review procedures for hazard, incident and injury reporting and investigation
 - 4.2 Establish or review procedures for hazard identification, hazard analysis and risk assessment
 - 4.3 Establish or review hazard specific risk control measures are in place to meet legal requirements and minimise risk as far as is practicable
 - 4.4 Establish or review procedures for on going control of identified and hazards and monitoring of the effectiveness of controls

- 5. Establish and maintain an OHS training program.
 - 5.1 Conduct an OHS training needs assessment for the workgroup that takes account of legislative requirements, internal policies and procedures, skills of workgroup and risk control requirements
 - 5.2 Develop and implement an OHS training program to identify and fulfil employee's OHS training needs as part of the enterprise general training program
 - 5.3 Coordinate with relevant training experts as necessary.

- 6. Establish and maintain a system for OHS records.
 - 6.1 Identify and address legal requirements for record keeping and reporting
 - 6.2 Sources of OHS information are identified and accessed
 - 6.3 Actions are taken to ensure that records are accurately completed, collected and stored

- 7. Implement OHS systems, strategies and plans
 - 7.1 OHS priorities are determined in consultation with managers and taking account of participative arrangements in the workplace
 - 7.2 Plans are developed for the implementation of OHS strategies
 - 7.3 Plans are monitored for achievement and updated as required

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	3
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	3
Using mathematical ideas and techniques	3
Solving problems	3
Using technology	3

RANGE STATEMENT

This unit of competency describes OHS requirements applicable for those with managerial responsibilities for establishment and ongoing management of the occupational health and safety management system within the enterprise. This may be as a worker or as an owner of a business.

The competency is to be exhibited within the area of managerial responsibility, which may be an entire enterprise or department of an enterprise. Roles and responsibilities will vary from enterprise to enterprise.

Competence is demonstrated in the context of an enterprise where the OHS system with related policies, procedures and programs may or may not be established. Where the OHS system is established, the role will relate to the review of the OHSMS.

Workplace factors that may impact on the design of the OHSMS include:

- whether certification is required
- organisational structure
- management commitment
- management style and OHS knowledge and skills of managers
- workplace culture including industrial relations and safety culture
- communication and consultation processes
- other management systems requiring interface or integration with the OHSMS
- resources available
- nature of hazards and level of risk
- staff profile including language, literacy and numeracy, workplace ethnic and cultural diversity, special needs for employees

Other functional areas and management systems may include:

- strategic planning
- purchasing, procurement and contracting
- logistics
- HR and personnel management including payroll
- engineering and maintenance
- information and records management
- finance and auditing
- environmental management
- quality management

Relevant standards relating to OHS may include:

- Australian standards
- standards developed by OHS authorities

- industry standards
- standards developed by commercial organisations

This competency covers process manufacturing plants which may involve workplace hazards such as:

- chemicals and hazardous materials
- gases and liquids under pressure
- moving machinery
- materials handling
- working at heights, in restricted or confined spaces, or environments subjected to heat, noise, dusts or vapours.

Emergencies may include:

- incidents with a potential for serious injury
- fires and explosions
- chemical spills
- bomb scares.

Legal requirements for record keeping will include requirements under:

- hazardous substances and dangerous goods legislation including requirements to keep registers
- OHS and environmental legislation to report serious incidents and injuries, keep records of risk assessments

Sources of OHS information may be external and include:

- OHS legislation, codes of practice and Australian and International standards
- OHS regulators and National Occupational Health and Safety Commission
- industry bodies
- internet sites, journals and newsletters

Internal sources of OHS information include:

- OHS policies and procedures
- Manufacturers' manuals
- Risk assessments, JSA's, workplace inspections
- MSDSs and registers
- Hazard and incident reports

EVIDENCE GUIDE

Assessment context and methods

The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency.

Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios, and the outcomes of the process such as policies and procedures developed, plans and reports written, minutes of meetings chaired.

Critical aspects

It is essential that the OHS issues and workgroup dynamics are understood together with the required OHS knowledge in order to frame and implement an OHSMS that is practical and relevant to the workplace. Competence must be demonstrated in the ability to:

- develop appropriate documentation
- consult and negotiate to implement the policies and procedures
- apply a systematic process to planning and implementation

Consistent performance should be demonstrated. In particular look to see that the required level includes a working knowledge of the OHSMS as it applies in the specific workplace. Look to see knowledge and understanding of:

- OHS responsibilities of all levels in the workplace
- the consultation processes, either general or specific to occupational health and safety
- training and assessment of training needs
- hazard identification and risk assessment
- implementation of risk control measures by applying the hierarchy of control
- the need for specific hazard policies and procedures
- new and relevant occupational health and safety information
- occupational health and safety record keeping
- the system/routine for maintenance of plant and equipment
- the system for purchasing of supplies and equipment
- OHS issue resolution processes.

These aspects are best assessed in the actual workplace and work group however they may also be assessed as a review process in a sample workgroup accessed for the purpose of the assessment supported by a range of scenarios/case studies.

Resource implications

Assessment will require access to a work group over an extended period of time, or a suitable method of gathering evidence over a period of time.

Other assessment advice

It is expected that this competency may be applicable in combination with other industry, occupation or workplace-specific competencies, it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of the workplace OHSMS and State OHS legislation, regulations, codes of practice and relevant industry standards, sufficient to establish and maintain the OHSMS within the scope of their responsibilities and competencies.

In these industries which are characterised by high risk hazards, it is vital that the overarching legal responsibility of managers is recognised in relation to the establishment and implementation of the OHSMS including ensuring the compliance of operators with established policies and procedures. The responsibility applies not only within the general OHS Acts and regulations, but also within the legislation and national and industry standards applying to hazardous substances, dangerous goods and major hazards.

Competence includes the ability to apply a working knowledge of:

- all relevant State and Territory OHS legislation particularly as it relates to the roles and responsibilities of employers and employees including supervisors and contractors, requirements for information and consultation and processes and arrangements to met these obligations, requirements for OHS record keeping and reporting and requirements for training and licensing
- elements of an OHSMS and principles and practices of effective OHS management and risk control, OHSMS requirements of other functional area and management systems including business planning, purchasing, maintenance, contractors, training
- barriers to implementation of OHS including language and literacy, cultural diversity of workforce and workplace culture in relation to OHS
- codes of practice, relevant industry standards, workplace procedures and work instructions
- apply the hierarchy of control to develop risk control procedures

Prerequisites

This unit **has** the prerequisites of:

- PMAOHS503A Maintain the workplace OHS management system.

PMAOPS101B

Read dials and indicators

Unit Descriptor

This competency covers making (or taking) readings/measurements in a variety of sites and locations, using common types of plant instrumentation. This competency unit also covers recording measurement results. This would typically be in a format according to procedures, with the appropriate level of detail included in all reports.

In a typical scenario an operator patrols the plant taking a range of readings to complete logs and check on the operation of the plant. The operator needs to interpret the display on the instrument and record the appropriate reading. As part of this process, they check that the instrument is within calibration (where appropriate) and make a judgement as to whether the reading is 'reasonable' or whether some action needs to be taken.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Contribute to controlling hazards in work area. | 1.1 Identify hazards in work area
1.2 Take appropriate action to control risks according to procedures. |
| 2. Identify appropriate measuring device readings. | 2.1 Explain the need for calibration and where appropriate, confirm the calibration of the measuring device
2.2 Select appropriate units on the measuring device
2.3 Select appropriate scale(s) on the measuring device. |
| 3. Perform measurements. | 3.1 Identify the range of results that could be obtained
3.2 Identify and take account of relevant external factors
3.3 Perform measurements using appropriate techniques
3.4 Identify measurements outside the range of expected results
3.5 Take action on measurements outside expected range according to procedures. |
| 4. Record results. | 4.1 Record readings accurately in the appropriate format
4.2 Record the results to the appropriate level of detail. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

Typical dials and indicators include (select relevant items):

analog dials, eg

- pressure gauge
- rev counter
- temperature dial

digital readouts, eg

- pH meter
- temperature probe
- ammeter
- flow meter
- weigh scales.

Calibration checks could include:

checking the date that the next calibration is required (eg, weigh scale, pressure gauge)

using a calibration button on the instrument (eg, zero button on an ammeter, calibration button on an electronic meter).

Resolution of equipment problems or non-conforming measurements/readings is restricted to responding in a routine, predetermined manner as specified in the procedures for your plant. All operations are performed to procedures.

Readings may need to be made at heights, in wet or restricted conditions, or close to hot or moving equipment.

Taking action may be reporting.

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or Federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case study/scenarios may be required to allow for timely assessment of parts of this competency unit (eg, those parts of element 2 referring to out of range readings). Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

Critical aspects

Competence must be demonstrated in the ability to recognise situations requiring action and then in implementing appropriate corrective action. While it is not expected that the operator will understand the full implications of readings outside the normal range, there should be awareness of the safety implications and the appropriate priority for response for such readings.

Consistent performance should be demonstrated. In particular look to see that:

- readings which are out of range or unusual/unexpected signs of problems or potential problems with the equipment/processes are recognised
- appropriate action is taken in a timely manner
- hazards are recognised and appropriate action is taken to control risks arising from such hazards.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

It may be appropriate to assess this unit concurrently with:

- PMAOHS100C Follow OHS procedures.

Essential knowledge

Demonstration of competence in this unit must include knowledge of the following:

- basic units of measurement
- measuring devices, including gauges, dip-sticks, thermometers and the like
- graphs and scales
- procedures related to this competency
- typical problems with measuring equipment applicable to this competency
- procedures for reporting or dealing with typical equipment problems and threats to safety.

Prerequisites

This unit **has no** prerequisites.

PMAOPS105B

Unit Descriptor

Select and prepare materials

This competency covers the selection and preparation of materials for use in production processes. The focus of this unit is on finding and delivering the right materials to the process in the right condition. On the way, some minor preparation may be required.

A typical application of this competency could be an operator preparing a range of chemicals or other substances for use in a batch process. The operator would visually inspect each item for deterioration or damage, and follow procedures to prepare materials. Once prepared, the operator would then assemble the materials for supply to production areas.

This unit only covers those situations where mixing, grinding, testing, etc, are an incidental part of the process of preparing materials for use in production. It does not cover those situations where the primary function is mixing, grinding, testing, etc. Instead see:

PMAOPS202A Operate fluid mixing equipment

PMCOPS203A Operate grinding equipment

The operator requires a knowledge of classes of compatible and incompatible chemicals, as well as an understanding of HAZCHEM symbols and codes, and hazardous substances regulations. This includes the procedures for safe handling and storage of chemicals and hazardous substances. The operator also needs to be able to follow procedures for disposal of chemicals and other hazardous substances, and for dealing with spills or other containment issues.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---------------------------------------|--|
| 1. Identify and locate materials. | 1.1 Identify material requirements correctly from documentation
1.2 Identify type, quantity and quality of materials
1.3 Identify material hazards and handling procedures from: <ul style="list-style-type: none"> 1.3.1 label 1.3.2 <u>hazchem</u> symbol 1.3.3 MSDS 1.3.4 other relevant source 1.4 Locate and check materials to procedures
1.5 Confirm availability of required quantity of materials
1.6 Record and report material shortages. |
| 2. Contribute to controlling hazards. | 2.1 Identify other hazards in work area
2.2 Take action to control material hazards as per documentation
2.3 Take appropriate action to control other hazards in the workplace. |

PMAOPS105B Select and prepare materials

- 3. Measure quantity of materials.
 - 3.1 Identify types of measuring equipment and their purpose, and select according to requirements
 - 3.2 Measure and assemble required quantities
 - 3.3 Check material quantities against documentation
 - 3.4 Document and label materials
 - 3.5 Deliver materials to correct location.
- 4. Prepare materials as required.
 - 4.1 Check that hoppers, bins and holding tanks are free from contamination
 - 4.2 Identify classes of compatible and incompatible chemicals
 - 4.3 Prepare materials to procedures.
- 5. Store assembled materials.
 - 5.1 Identify the storage conditions required for the main classes of chemicals
 - 5.2 Identify materials that have special storage requirements
 - 5.3 Store and supply materials.
- 6. Dispose of waste materials.
 - 6.1 Correctly identify waste materials
 - 6.2 Dispose of materials to procedures and OHS and environmental requirements.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	-
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency is typically performed by operators, weighers, mixers or stores personnel, and includes the following tasks (select relevant items):

- handling raw chemicals
- storing raw chemicals
- pre-production assembling and labelling of materials
- pre-production inspection of materials, usually involving visual inspections only for identification of deterioration or damage
- pre-production measuring of materials, by weight, volume or density
- disposal of waste materials
- identifying and reporting hazards, safety and other issues that could affect the operation of the plant.

Typical examples of preparation required might include (select relevant items):

- warming to melt waxy materials
- breaking up solid materials into pieces or smaller lumps
- passing materials through an in-line delumper
- blending a powder or liquid into a solution prior to use in the process
- blending powders prior to production
- dilution of solutions
- preparation of a solution for dosing into a process.

Equipment may include:

- buckets
- stirring paddle
- propeller or drum mixers
- delumpers
- hammers or axes
- measuring equipment including scales, flow meters and graduated vessels
- personal protective equipment

Documentation may include:

- materials safety data sheets (MSDSs)
- enterprise procedures
- labelling requirements (dangerous goods codes, classification numbers, packaging group numbers)
- HAZCHEM symbols and codes
- spill containment and disposal procedures.

Materials may include:

- raw materials
- packaging materials
-

consumables.

Typical problems are restricted to responding in a routine, predetermined manner as specified in the procedures.

All operations are performed to procedures.

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or Federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which could include disruptions to normal, smooth operation.

Critical aspects

Consistent performance should be demonstrated. In particular look to see that:

- all operations are performed to procedures and OHS and environmental requirements
- signs of problems or potential problems with the equipment/processes are recognised
- appropriate action is taken in a timely manner
- hazards are recognised and appropriate action is taken to control risks arising from such hazards.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus, with a walk-through forming part of the response. The assessment activities should include responding to a range of problems.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

It may be appropriate to assess this unit concurrently with:

- PMAOHS100C Follow OHS procedures.

Essential knowledge

Demonstration of competence in this unit must include knowledge of the following:

- identification of materials in plant
- classes of compatible and incompatible chemicals
- storage requirements of materials
- any special storage requirements
- basic measurement procedures
- routes of entry of chemicals to the body (basic only)
- procedures for safe handling of chemicals and hazardous substances
- correct selection, use and maintenance of required PPE
- labeling requirements (dangerous goods codes, classification numbers, packaging group numbers)
- HAZCHEM symbols and codes
- spill containment and disposal procedures
- procedures related to this competency
- environmental requirements related to waste disposal
- workplace processes sufficient to recognise non-standard situations
- workplace hazards and methods of controlling hazards according to procedures
- procedures for reporting or dealing with non-standard or hazardous situations
- materials safety data sheets (MSDSs)

An operator is expected to be aware of an MSDS, its general structure and where to find the methods of use, cautions and actions in an emergency. They are not expected to understand the full text of an MSDS.

Prerequisites

This unit **has no** prerequisites.

PMAOPS212A

Unit Descriptor

Use enterprise data system

In a typical scenario, an operator is required to use enterprise data systems in order to work effectively. The operator is familiar with the system, can locate and use the appropriate data and is able to accurately record data into the system as required. Typical data systems may involve:

safety support, hazard data, materials data

production systems, schedules, batch control, operating instructions

logistical control systems, ordering, stock control, production and storage.

This unit does NOT apply to the use of computer packages, spreadsheets or databases for the collection and presentation of data see PMBCOMP201B Use computers in the workplace.

The plant technician would:

input data to the systems as required

locate and access data as required for production support/problem solving

use data to support business objectives.

Generally the plant technician would be part of a team and is expected to be capable of performing all parts of this unit. At all times they would be liaising and cooperating with other members of the team.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Use enterprise data system. | 1.1 Log on to enterprise data system
1.2 Navigate the menus, modules and pages as required
1.3 Use the help system
1.4 Exit the system to procedures. |
| 2. Store data in system. | 2.1 Ensure correct data is available for entry
2.2 Open correct data entry screen
2.3 Transcribe data accurately into the system as required
2.4 Confirm data has been accurately entered
2.5 Store data. |
| 3. Use routine data from system. | 3.1 Access data as required
3.2 Output the data as required
3.3 Input, adjust or make other changes as required to update the data. |
| 4. Use data to support non-routine requirements. | 4.1 Describe data required to support non-routine issue
4.2 Access data system to find required data
4.3 Output data in appropriate format using enterprise data system
4.4 Interpret data to support workplace requirements. |

- 5. Respond to problems with the data system.
 - 5.1 Identify the range of faults that can occur during the operation
 - 5.2 Determine and rectify fault causes using procedures
 - 5.3 Maintain appropriate records of system operations to meet procedures
 - 5.4 Identify non-routine problems and report to designated person.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	1

RANGE STATEMENT

This unit of competency includes enterprise data systems. For your plant this may include systems which cover (select relevant items):

- safety, safety data and injury reporting
- orders, purchasing, stock levels and scheduling
- stock control, stores, warehousing and logistics
- materials hazards, labelling, materials identification, MSDSs (materials safety data sheets)
- batch data, schedules, production planning and operations planning
- product quality, statistical control, production trends and quality control
- maintenance, maintenance planning, procedures and spare parts.

The enterprise systems will usually be computerised, but may include data sheets, paper or hard copy records, manuals and instructions.

Examples of non-routine requirements include:

- changes in product dimensions
- process condition trends
- effluent stream composition

Typical problems, which may require access to data for your plant, may include:

- adjusting plant rates or production schedule to respond to changes
- responding to maintenance issues
- meeting customer requirements
- responding to variations to meet enterprise KPIs.

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or Federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating enterprise system. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations, which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency (eg, elements 4 and 5). Simulation should be based on the actual enterprise system and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action. The emphasis should be on the ability to stay out of trouble rather than on recovery from a disaster.

Consistent performance should be demonstrated. In particular look to see that:

- the operation and access to data from the system can be demonstrated
- data can be input and output from the system as required
- obvious problems in related to operation of the system are recognised and an appropriate contribution made to their solution.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations, which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications

Assessment will require access to an operating enterprise system over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions, which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units. It may also be appropriate to assess this unit concurrently with a relevant OPS unit.

Essential knowledge

Competence includes an understanding of the enterprise data system to the level needed to use the system and recognise and resolve problems. In particular it includes the ability to:

- demonstrate the operation of and access to data from the system
- describe the scope and range of data required from the system, in order to support the solution of problems
- describe the nature of the scope and range of available data
- describe the causes and remedies of common problems such as those selected in the range of variables.

Competence also includes the ability to isolate the causes of problems to a component of the enterprise data system and to distinguish between causes of problems such as:

- incorrect or misleading data
- system software faults
- system equipment faults.

Prerequisites

This unit has **no** prerequisites.

PMAOPS216A

Unit Descriptor

Operate local control system

In a typical scenario, an operator is operating a batch reactor or self-contained section of plant, which requires the use of a local control system. The operator will use the local control panel to monitor and control process variables such as temperature or pressure and the operation of valves and pumps to add raw materials, additives, and discharge product. Routine start up and shut down of the equipment using the local control system is expected, as is emergency response and shut down.

This includes an understanding of the process and all OHS requirements including emergency situations.

The unit does NOT apply to operating a control panel for an integrated plant, where the control is from a separate control room or control system, which is covered by PMAOPS305A Operate process control systems.

The plant technician would:

be aware of and contribute to a safe working environment

identify and report operational problems to their supervisor / control room operator

execute all routine activities including process monitoring, start up, shut down and adjustments (in accordance with position description).

Generally the operator would operate independently in the plant. The operator would be expected to be capable of performing all parts of this unit. At all times they would be liaising and cooperating with other members of the team.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--------------------------------------|---|
| 1. Interface with the control panel. | 1.1 Monitor the process using the operator interfaces and keep appropriate personnel informed on developments |
| | 1.2 Select appropriate controller modes to ensure the effective control of the process |
| | 1.3 Undertake required set point/output changes to optimise plant and process requirements |
| | 1.4 Access historical data and information |
| | 1.5 Acknowledge messages and alarms. |

- | | |
|---|--|
| 2. Control the process using local control system. | <ul style="list-style-type: none"> 2.1 Obtain relevant data and information from the control system by applying systems knowledge 2.2 Identify the status of individual pieces of equipment from the control panel and use information to identify potential faults 2.3 Interpret alarms and prioritise steps to ensure control of system is maintained 2.4 Minimise fluctuations and variations in process through the interpretation of existing trends and control schematics 2.5 Make required set point/output changes to meet plant and process requirements 2.6 Record process variations/irregularities in accordance with procedures. |
| 3. Facilitate planned and unplanned process start-ups and shutdowns | <ul style="list-style-type: none"> 3.1 Respond to all alarms and take appropriate action 3.2 Maintain co-ordination with all outside services and operations in order to assist in the correct identification and reporting of faults 3.3 Conduct planned start-up and shutdown processes to <u>procedures</u> 3.4 Conduct unplanned start-up and shutdown processes to <u>procedures</u> 3.5 Communicate with all operational areas and personnel affected by unplanned events to ensure safety is maintained during the process 3.6 Implement all required and stated emergency responses and ensure the outcomes of these responses are communicated to all affected areas 3.7 Log all required information for further action to provide a historical record of all events. |
| 4. Control hazards. | <ul style="list-style-type: none"> 4.1 Identify hazards in the production/processing work area 4.2 Assess the risks arising from those hazards 4.3 Implement measures to control risks in line with <u>procedures</u> and duty of care. |
| 5. Respond to problems | <ul style="list-style-type: none"> 5.1 Monitor plant frequently and critically throughout shift using measured/indicated data and senses (sight, hearing, etc) as appropriate. 5.2 Recognise operational problems 5.3 Analyse cause of operational problems within scope of skill level 5.4 Take timely and appropriate action to solve operational problems. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	1
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

This unit of competency includes all such items of equipment and unit operations, which form part of the production/processing system. For your local control system this may include (select relevant items):

- programmable logic controllers (PLCs)
- hard wired control and alarm panels
- analogue control systems
- personal computers
- printers
- fire and gas detection/protection systems
- emergency shutdown systems
- communications systems.

Typical problems for your plant may include:

- variation/loss of feed
- unstable control of pressure, temperature level and flows
- control equipment failure
- process plant trips
- change in atmospheric conditions (rain, temperature, wind, lightning)
- emergency situations.

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or Federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

All work to be undertaken within the limits of the issued permit to work - this may include both hot and cold work requirements and may be within a team or individual context.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on a local control system. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations, which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency (eg, elements 3 and 5). Simulation should be based on the actual process control system and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios, role plays and 3D virtual reality interactive systems.

This unit of competency requires a significant body of knowledge, which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant

Critical aspects

Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate responses. The emphasis should be on the ability to stay out of trouble rather than on recovery from a disaster.

Consistent performance should be demonstrated. In particular look to see that:

- early warning signs of equipment/processes needing attention or with potential problems are recognised
- the range of possible causes can be identified and analysed and the most likely cause determined
- appropriate action is taken to ensure a timely return to full performance
- obvious problems in related plant areas are recognised and an appropriate contribution made to their solution.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations, which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications

Assessment will require access to a process control system over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions, which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units. Consider co-assessment with appropriate operations competencies for the unit of plant.

In a major hazard facility, it may be appropriate to assess this unit concurrently with:

- PMAOHS200 Participate in workplace safety procedures

Essential knowledge

Competence includes an understanding of underpinning knowledge. Demonstration of competence in this unit must include knowledge of:

- all items on a schematic of the controller and describe the function of each
- principles of operation and location of the process/production equipment
- specific plant process operations
- product specifications and tolerances
- systems operating parameters
- basis of control for the process
- emergency shutdown procedures
- process specific physics, chemistry and mathematics
- process drawings (eg, PID, PFS, cause and effect)
- instrumentation and control systems
- effective communication techniques.

Competence also includes the ability to distinguish between causes of problems/alarms/fault indications such as:

- instrument failure/malfunction
- electrical failure/malfunction
- mechanical failure/malfunction
- equipment design deficiencies
- product parameters (temperature, flows, pressure and levels).

An ability to communicate with other work groups and personnel during the operation and monitoring of this equipment is considered to be an essential element of this unit of competency.

Prerequisites

- This unit **has no** prerequisites.

PMAOPS401B

Unit Descriptor

Trial new process/product

This competency typically applies to a technician in a plant who is taking a lead technical role in the trialing of a new product or the trialing of a new or significantly altered process. This competency does not apply to minor modifications to existing products or processes, which may be better covered by PMAOPS300A Identify and implement opportunities to maximise production efficiencies. Similarly it does not apply to a technician taking part in such trials, and simply following directions. This is part of their routine job and as such is part of the competency relevant to that unit operation.

The technician would:

identify and rectify operational problems within their scope

analyse the trial, both while it is occurring and after completion, and suggest improvements

be alert for indications of developing problems and take required action to ensure the trial remains safe to people, the environment and the plant.

The technician would be expected to operate and control all equipment required for the trial. Generally the plant technician would be part of a team during the trial, and would usually be working in conjunction with a process/product development expert such as a chemist or engineer. The technician is probably the most technically competent member of an operational team. As such they may not have the hands on' role of operating items of equipment, but are expected to have the competence to do so and to be directing the operation of equipment as appropriate throughout the trial. At all times they would be liaising and cooperating with other members of the team.

Trialing refers to the scale-up and other development steps required to take a new product or process from its design/laboratory trials to full commercial operation on a plant. Trialing may be done on a pilot plant where available and/or on a full scale plant.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Contribute to the selection of equipment/process conditions. | 1.1 Liaise with appropriate technical expert(s)
1.2 Interpret properties of materials and desired product characteristics
1.3 Interpret technical specifications/drawings of plant requirements
1.4 Recommend equipment/ancillary equipment appropriate for the materials, products and conditions
1.5 Recommend process conditions appropriate for the equipment, materials and product characteristics
1.6 Recommend feed rates/order/condition appropriate to the process conditions, equipment, materials and product characteristics
1.7 Ensure hazard identification and analysis procedures are completed, including consultation with stakeholders, and findings included in plan
1.8 Ensure recommendations meets the identified need. |
|---|--|

- 2. Prepare for trials.
 - 2.1 Determine the availability of resources required such as materials, equipment, people and skills
 - 2.2 Estimate time required for trial
 - 2.3 Liaise with relevant stakeholders
 - 2.4 Schedule trial at a convenient time
 - 2.5 Develop documentation for the trial
 - 2.6 Identify potential hazards and required hazard control procedures by applying the hierarchy of control
 - 2.7 Determine clearance requirements and special safety and storage requirements
 - 2.8 Verify decisions with appropriate expert/stakeholder
 - 2.9 Ensure people with adequate skills are available for the trial.

- 3. Conduct test runs/trials.
 - 3.1 Ensure hazard controls are implemented prior to commencement
 - 3.2 Run trials
 - 3.3 Maintain communication with all relevant people
 - 3.4 Closely monitor critical parameters
 - 3.5 Recognise actual and potential problems
 - 3.6 Make adjustments to process conditions as required during trial
 - 3.7 Sample and test product as required
 - 3.8 Record and report performance data
 - 3.9 Ensure all materials, products and waste are handled correctly
 - 3.10 Leave plant in a condition suitable for routine production to recommence.

- 4. Evaluate results and identify modifications.
 - 4.1 Interpret data from trial
 - 4.2 Identify factors which might be related to low rates/low charge amounts
 - 4.3 Recommend modifications and improvements required
 - 4.4 Develop and check standard operating procedure
 - 4.5 Complete documentation and report to appropriate personnel
 - 4.6 Ensure all relevant staff have required skill levels for the introduction of the new process.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	3
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	3
Using mathematical ideas and techniques	2
Solving problems	3
Using technology	3

RANGE STATEMENT

This unit of competency includes all items of equipment and unit operations which form part of the trial.

Liaison with technical experts may (depending on trial requirements and company protocols) include one or more of:

manufacturers

chemists

engineering personnel

designers

OHS advisors

maintenance personnel

potential customers.

Hazard analysis procedures may include:

hazard and operability (HAZOP) studies

hazard analysis (HAZAN) studies

other company specified procedures.

Hazards may be determined from:

materials safety data sheets (MSDSs) or other relevant documentation such as hazard logs, incident reports

company hazard identification procedures

hazard analysis results.

Waste handling may include:

collection for reuse

recycling

disposal in accordance with health and environmental regulations.

Typical problems for your trial might include:

process/reaction does not proceed/proceeds too slowly

process/reaction proceeds too quickly/runs away

yield is low

quality is out of specification

process is unstable

instrumentation is not sufficiently sensitive/too sensitive

variable catalyst activity

surging flow/pressure.

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or Federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The plant may be a pilot plant or a production plant as appropriate. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action. The emphasis should be on the ability to stay out of trouble rather than on recovery from a disaster.

Consistent performance should be demonstrated. In particular look to see that:

- hazards are identified and controlled
- early warning signs of equipment/processes needing attention or with potential problems are recognised
- the range of possible causes can be identified and analysed and the most likely cause determined
- appropriate and timely action is taken to ensure the safety and success of the trial
- obvious problems in related plant areas are recognised and an appropriate contribution made to their solution.

It is not expected that the candidate will be able to conduct technical hazard analysis procedures but they should be able to interpret and use the outcomes of such analyses.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk-through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications

Assessment will require access to an operating plant or pilot plant over the period of the trial, or a suitable method of gathering evidence of their ability to conduct a trial. Generally evidence of having conducted one complete trial of a completely new product will be sufficient. A greater number of trials will be required for simpler trials. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork, communication and leadership units.

It may be appropriate to assess this unit concurrently with:

- PMAOHS300 Implement and monitor OHS policies and procedures for a work group
- PMAOHS401 Assess risk.

Essential knowledge

Competence includes an understanding of the plant systems and all integral equipment involved in the trial to the level needed to control the system and recognise and resolve problems. In particular it includes the ability to:

- identify all items on a schematic of the plant and describe the function of each
- describe the nature/condition of materials entering and leaving each stage of the process, the changes which have occurred in that stage and why they have occurred
- state the major design features of plant equipment, plant conditions and variables and the impact of these on the properties of materials passing through them
- describe the causes and remedies of common problems such as those selected in the range of variables
- apply the hierarchy of control to minimise the risk of hazards identified
- describe methods of changing rate and the advantages and disadvantages of each
- describe methods of controlling other process variables and the advantages and disadvantages of each.

Competence also includes the ability to isolate the causes of problems to an item of equipment within the plant system and to be able to distinguish between causes of problems/alarm/fault indications such as:

- process material variations
- instrument failure/wrong reading
- electrical failure
- mechanical failure
- operational problem.

Prerequisites

This unit has the prerequisites of at least one relevant OPS300 unit .

PMAOPS511A

Unit Descriptor

Determine energy transfer loads

This competency covers the application of a knowledge of energy transfer and energy balance principles to the design and use of processing equipment. This competency is typically performed by senior technicians. It includes:

conduction, convection and radiation

thermal properties of materials, particularly process materials

methods of heating process materials

cooling systems

energy balances.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | | | |
|----|---|-----|---|
| 1. | Calculate heat transferred from/to items. | 1.1 | Calculate conductive heat transfer to/from an object |
| | | 1.2 | Calculate convective heat transfer to/from an object |
| | | 1.3 | Calculate heat transfer from/to steam |
| | | 1.4 | Calculate radiative heat transfer to/from an object |
| | | 1.5 | Calculate combined heat transfer to/from an object, including resistances in series and parallel. |
| 2. | Calculate temperature change. | 2.1 | Calculate temperature change caused by heating/cooling of process materials in typical examples of processing equipment |
| | | 2.2 | Calculate change in heat content caused by chemical reaction |
| | | 2.3 | Calculate temperature rise caused by chemical reaction. |
| 3. | Select appropriate heating and/or cooling mechanism for an application. | 3.1 | Compare rates of heat transfer/overall heat transfer coefficients for major methods of heating and cooling |
| | | 3.2 | Determine appropriate methods of varying/controlling rates of heat transfer |
| | | 3.3 | Calculate heat transfer rates under a range of conditions. |
| 4. | Conduct energy balance over process components. | 4.1 | Determine desired boundaries for energy balance calculation |
| | | 4.2 | Determine possible sources of data required from the plant |
| | | 4.3 | Match and adjust sources of data to desired boundary for energy balance |
| | | 4.4 | Determine overall heating load |
| | | 4.5 | Determine overall cooling load |
| | | 4.6 | Determine the adequacy (or otherwise) of the process/plant heating/cooling system to cope with this load. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	3
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	3
Solving problems	3
Using technology	3

RANGE STATEMENT

This competency unit includes the heating/cooling loads of all processing equipment and requires the quantitative determination of loads. This competency applies to all sectors within the chemical, hydrocarbons and oil refining industry.

Heat transfer modes include:

- conduction
- convection (forced and natural)
- radiation
- combined conduction/convection.

Sources of heating/cooling include:

- chemical reaction
- water cooling
- air cooling
- steam heating (calculations for saturated steam only)
- hot fluid (eg, oil) heating.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant and off the plant.

Critical aspects

Competence must be demonstrated in the ability to complete an energy balance in a structured way, taking real data from an operating plant.

Consistent performance should be demonstrated. In particular look to see that:

- realistic boundaries are drawn for the energy balance which align with practical sources of data from the plant
- data is collected from the plant with minimum disruption to production
- theoretical and practical requirements for the energy balance are consistent
- the energy balance data is used to identify and contribute to solutions for plant problems.

This will typically be assessed by one or more energy balance projects on an operating plant. One complex energy balance, or a number of simple energy balances, are required to demonstrate competence.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of heat transfer principles and calculations sufficient to determine the heating/cooling loads of an existing or a new process. Competence includes the ability for the practical completion of the job to apply and/or explain:

- conduction
- convection
- radiation
- combined conduction/convection
- specific heat capacity
- exothermic and endothermic reaction calculations
- energy balances.

Prerequisites

This unit **has no** prerequisites.

PMAOPS512A

Unit Descriptor

Determine mass transfer loads

This competency covers the application of a knowledge of mass transfer and mass balance principles to the design and use of processing equipment. This competency is typically performed by senior technicians. It includes:

- calculating mass flow rates
- density variations with changes in temperature (and pressure where appropriate)
- mass changes resulting from a chemical reaction
- mass flow of components of a mixed stream
- mass balances.

Note that this unit uses the term 'flow rate' and similar terms. This may be the flow rate in terms of kg/h, or kg/batch or similar conceptual flows.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Calculate mass flow rates of streams. | 1.1 Calculate mass flow rate of plant streams from volumetric data, correcting for changes in density
1.2 Calculate mass flow rate of individual components of plant streams from their concentrations
1.3 Calculate mass accumulation (+ or -) within a plant item. |
| 2. Calculate mass change due to a chemical reaction. | 2.1 Determine yield from reaction of all significant products
2.2 Determine mass output of all significant products arising from the reaction for specified reactant inputs. |
| 3. Conduct mass balance over process components. | 3.1 Determine desired boundaries for mass balance calculation
3.2 Determine possible sources of data required from the plant
3.3 Match and adjust sources of data to desired boundary for mass balance
3.4 Determine overall mass balance
3.5 Determine mass balance for each significant component/ reactant and product
3.6 Determine the adequacy (or otherwise) of the process/plant heating/cooling system to meet production requirements. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	3
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	3
Solving problems	3
Using technology	3

RANGE STATEMENT

This competency unit includes the mass transfer into and out of all processing equipment and requires the quantitative determination of mass transfer loads. This competency applies to all sectors within the chemical, hydrocarbons and oil refining industry.

Mass transfer modes include:

- simple (physical) mixing
- simple (physical) separation
- changes in component mass flow rates due to chemical reaction (including mixing and separation using chemical reaction).

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency.

Assessment will typically be by a mass balance project(s).

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant and off the plant.

Critical aspects

Competence must be demonstrated in the ability to complete a mass balance in a structured way, taking real data from an operating plant.

Consistent performance should be demonstrated. In particular look to see that:

- realistic boundaries are drawn for the mass balance which align with practical sources of data from the plant
- data is collected from the plant with minimum disruption to production
- theoretical and practical requirements for the mass balance are consistent
- the mass balance data is used to identify and contribute to solutions for plant problems.

This will typically be assessed by one or more mass balance projects on an operating plant. One complex mass balance, or a number of simple mass balances, are required to demonstrate competence.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of mass transfer principles and calculations sufficient to determine the mass transfer loads of an existing or a new process. Competence includes the ability for the practical completion of the job to apply and/or explain:

- changes in density with temperature (and pressure where appropriate)
- stoichiometry of chemical reactions
- mass balances.

Prerequisites

This unit **has no** prerequisites.

PMAOPS520B

Unit Descriptor

Manage utilities

In a typical scenario, a senior plant technician manages the use of utilities by all units within the plant as a whole (or a significant plant area) and takes actions which will lead to a more efficient use of these utilities. Utilities is used to mean:

steam (saturated and/or superheated)

air (instrument, safety, process and/or mechanical)

water (cooling and/or process)

fuel (gas, oil)

other heating/cooling mediums (oil, Dowtherm', brine)

electricity.

This unit does NOT apply to the routine monitoring of water systems or utilities which are covered by PMAOPS204A Use utilities and services.

The plant technician would:

identify sources and uses of the relevant utilities

check the efficiency of use of the utility

take action to increase the efficiency of use of the utility the action might range from implementing changes to reporting problems and recommendations to coordinating others implementing the changes.

Generally this would be a significant role of a senior plant technician who in the exercise of that role would consult and liaise with a range of other personnel and technical experts, both internally and external to the company, within company guidelines.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Identify source and use of all utilities on plant. | <ul style="list-style-type: none"> 1.1 Obtain current piping diagram for plant 1.2 Identify all items of equipment using utilities 1.3 Identify source of each utility 1.4 Identify utility properties (eg, pressure, voltage, current) as supplied 1.5 Determine required utility properties(eg, from engineering specification) for each item of equipment using each utility. |
| 2. Determine actual consumption of utilities. | <ul style="list-style-type: none"> 2.1 Get information showing consumption of utilities by the plant and plant equipment 2.2 Get information showing actual utility properties as used by each plant item 2.3 Physically check each item of equipment for signs of inefficient utility use (eg, faulty steam traps, leaks) 2.4 Compile report/database showing actual usage of utilities and observed problems. |

- 3. Determine efficiency of use.
 - 3.1 Determine theoretical consumption of utilities for equipment items from engineering specifications, by calculation or other methods
 - 3.2 Compare actual consumption of utilities with theoretical consumption
 - 3.3 Determine inefficient users of utilities
 - 3.4 Compile report/database showing efficiency of use of utilities.

- 4. Take required action to improve utility efficiency.
 - 4.1 Rank inefficient users in priority order for remediation based on costs and business requirements
 - 4.2 Investigate and determine cause(s) of inefficiency in the higher ranked users
 - 4.3 Develop plans to remove the causes of inefficiency
 - 4.4 Identify any safety, health and environmental (HSE) implications of planned actions and address prior to any implementation of changes
 - 4.5 Consult with relevant stakeholders regarding HSE implications and the implementation of these plans
 - 4.6 Initiate corrective action for items within scope of authority
 - 4.7 Follow through on items to facilitate a timely completion
 - 4.8 Report/make recommendations on required improvements which are beyond scope of authority to action.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	2
Using mathematical ideas and techniques	3
Solving problems	3
Using technology	2

RANGE STATEMENT

This unit of competency includes all such items of equipment and unit operations which use utilities.

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or Federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency.

Typically this unit will be assessed by a project aimed at improving the efficiency of use of utilities. It may not be appropriate to wait until implementation of change (in element 4) is complete, and it is acceptable to assess from the plans for implementation.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to undertake a structured analysis of the use of utilities and to justify the recommendations for improvement based on the data.

Consistent performance should be demonstrated. In particular look to see that:

- plant data is obtained in a manner which does not interfere with production
- plant drawings (eg, P and IDs) and engineering specifications are interpreted correctly
- health, safety and environmental implications of any changes are identified and addressed, by applying the hierarchy of control, prior to any changes being implemented
- priorities for action consider all relevant factors such as plant key performance indicators, health, safety and environmental implications, simple, quick solutions versus those requiring a capital project, and other relevant business factors.

This will typically be assessed by one or more utilities improvement projects on an operating plant. One complex project, or a number of simple projects, are required to demonstrate competence.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

It may be appropriate to co-assess this unit with

- PMAOPS511A Determine energy transfer loads
- PMAOPS512A Determine mass transfer loads.

However, these are NOT prerequisites or corequisites as there are other ways of obtaining the data.

Essential knowledge

Competence includes an understanding of the utility usage of the plant and its equipment. It also requires an understanding of each utility used and how its use may be more or less efficient. It requires the ability to:

- identify all utility consuming items on a schematic of the plant, describe the function of each and the purpose of the utility supplied
- describe the nature/condition of the utility entering and leaving each stage of the process, the changes which have occurred in that stage and why they have occurred
- describe the causes and remedies of common problems in the use of each utility used.

Competence also includes the ability to isolate the causes of problems and to be able to distinguish between causes of problems/alarm/fault indications such as:

- poor/inappropriate quality supply of utility
- equipment failure (eg, faulty steam trap, fouled heat exchanger)
- operational problem (inappropriate usage pattern of utility).

Prerequisites

This unit **has no** prerequisites.

PMAOPS521B

Plan plant shut down

Unit Descriptor

In a typical scenario, a senior plant technician takes a lead technical role in the planning of a plant shut down such as the maintenance/pressure vessel inspection shut down. This competency requires the application of detailed plant knowledge to the task of developing a detailed shut down plan. This competency is not actually about the shutting down of the plant itself (see PMAOPS411A Manage plant shut down and restart), nor decommissioning (see PMASUP441B Decommission plant) but rather about the planning for the activities which will occur during a planned, major shut down.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Identify maintenance/
project and plant
requirements. | 1.1 Analyse relevant company records to determine activities which have been scheduled for the shut down
1.2 Obtain information from maintenance as to activities intended for the shut down
1.3 Obtain information from production as to activities intended for the shut down
1.4 Obtain information from any projects group as to activities intended for the shut down
1.5 Compile a list of all activities intended for the shut down, including sufficient detail to allow for shut down planning
1.6 Negotiate conflicts between proposed activities. |
| 2. Identify tasks, timelines
and resources. | 2.1 Break down each agreed shut down activity into required tasks
2.2 Determine time, people, material and other resources required and 'owner' for each task
2.3 Determine prerequisite tasks for each task
2.4 Ensure that a hazard identification and analysis process is undertaken, in consultation with stakeholders, on the whole shut down process including required tasks and prerequisite tasks
2.5 Identify conflicts between tasks arising from resources or other causes
2.6 Negotiate conflicts between tasks
2.7 Compile database of all tasks and their requirements. |
| 3. Develop schedule. | 3.1 Develop draft shut down schedule (including planning activities) using critical path/PERT or similar methods
3.2 Determine critical path for shut down tasks
3.3 Analyse tasks on critical path to determine methods of reducing critical path
3.4 Develop revised schedule
3.5 Analyse tasks on schedule to ensure that schedule does not contribute to OHS issues
3.6 Consult with all relevant stakeholders and analyse revised schedule for conflicts and possible savings
3.7 Negotiate conflicts
3.8 Develop final schedule and critical path. |

PMAOPS521B Plan plant shut down

- 4. Communicate with all relevant stakeholders.
 - 4.1 Contribute to shut down planning meetings with stakeholders
 - 4.2 Meet with stakeholders individually
 - 4.3 Ensure that OHS issues and required controls are clearly identified with stakeholders and other relevant personnel on site
 - 4.4 Prepare reports/documents as required
 - 4.5 Ensure all permissions required for tasks have been obtained
 - 4.6 Liaise with suppliers and contractors to obtain parts, materials and services.

- 5. Monitor shut down.
 - 5.1 Establish systems to allow monitoring of shut down to schedule
 - 5.2 Monitor progress to schedule
 - 5.3 Identify causes of not meeting schedule
 - 5.4 Negotiate a solution to cause, taking account of safety, health and environment issues
 - 5.5 Adjust schedule to meet changed circumstances but still meet overall timeline (if at all possible).

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	3
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	3
Using mathematical ideas and techniques	2
Solving problems	3
Using technology	2

RANGE STATEMENT

This unit of competency includes all such items of equipment and unit operations which are covered by the shut down. Where only a plant area (or one plant in an integrated complex) is being shut down, it also includes the impact of the shut down on those areas still operating.

- electronic databases (such as Access, DB, Oracle)
- other electronic forms (such as spreadsheets)
- card files
- other paper based systems.

- hazard and operability (HAZOP) studies
- hazard analysis (HAZAN) studies
- other company specified procedures.

- electronic project planning tools (such as MS Project)
- other specialised planning software
- paper techniques.

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on a plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency.

Typically this unit will be assessed by a shut down planning project. It may not be appropriate to wait until the shut down planning is completed, as it may be desirable to test for competence before taking a major role in a shut down. In this case a simulation should be used.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk-throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to undertake a structured analysis of the activities to be completed during the shut down and then undertaking the planning in a systematic manner.

Consistent performance should be demonstrated. In particular look to see that:

the plan minimises the time of the shut down

the plan identifies and addresses safety, health and environment issues

required activities/tasks are actively sought, broken into their components and scheduled

plant drawings (eg, P&IDs) and engineering specifications are interpreted correctly

priorities for action consider all relevant factors.

This will typically be assessed by a major shut down project on an operating plant. One complex project, or a number of simple projects, are required to demonstrate competence. As shut down planning is usually a team activity, it is appropriate to assess the technician while they undertake this activity as part of the team, provided competence in all aspects can be demonstrated.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

It may be appropriate to co-assess this unit with:

- BSBCMN402A Develop work priorities
- BSBCMN411A Monitor a safe workplace
- BSBFLM405A Implement operational plan
- BSBFLM504A Facilitate work teams
- BSBFLM505A Manage operational plan
- PMACOM400A Develop plant documentation.

Essential knowledge

Competence includes an understanding of the operation of the plant and its units. It requires the ability to:

- identify all necessary sequences of activities to ensure safe and efficient shut down
- identify health and safety implications associated with plant shut downs and formulate risk controls by applying the hierarchy of control (it is not expected that the candidate will be able to conduct technical hazard analysis procedures but they should be able to interpret and use the outcomes of such analyses)
- negotiate with a range of people to obtain the best outcome for the shut down from the conflicting priorities
- use planning tools to develop and modify complex plans/schedules.

Prerequisites

This unit **has** a prerequisite of at least one relevant OPS300 unit.

PMAOPS600B

Unit Descriptor

Modify plant

In a typical scenario, it has been identified that modifications need to be made to the plant, and equipment needs to be chosen to undertake these modifications. The identification of the need for modification is not part of this unit, and it may have arisen from any number of possible sources.

This competency does not require the design of equipment (which would typically be an engineering role), but does require the process specification of the equipment and the matching of performance specifications of off the shelf' and/or tendered equipment to the required specification. It also requires the selection of the most appropriate item.

This competency assumes that the technician responsible for these modifications takes the overall responsibility for the modifications, but would work with the support of other company and external experts. This extends to the coordination of the installation of the modified equipment. This unit does not cover the optimisation of plant by modification of process, procedures or practice (see PMAOPS400A Optimise operating systems) as it is to do with the modification of plant hardware.

This unit does not cover work requiring special certification (eg, registered structural engineer) but may include working with such people and providing process and product expertise.

Prerequisite Unit(s)

PMAOPS400A Optimise operating systems
 PMAOPS511A Determine energy transfer loads
 PMAOPS512A Determine mass transfer loads

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Confirm required outcomes from modification. | 1.1 Communicate with production and engineering managers and other key stakeholders and agree necessary and desirable: <ul style="list-style-type: none"> 1.1.1 technical requirements 1.1.2 operations requirements 1.1.3 timelines 1.1.4 cost and other requirements 1.2 Determine regulatory/industry code requirements
1.3 Obtain relevant drawings of existing plant
1.4 Develop modification brief, including relevant PandID sketch, to meet needs
1.5 Establish required performance measures to indicate success of project
1.6 Obtain 'sign off' on modification brief from all relevant persons. |
|---|---|

PMAOPS600B Modify plant

- | | | | |
|----|--|-----|---|
| 2. | Short list possible modifications to meet brief. | 2.1 | Investigate the range of available equipment/plant units |
| | | 2.2 | Determine relative advantages and disadvantages of each class of equipment/type of modification which may provide a solution |
| | | 2.3 | Compile a shortlist of modification types/equipment classes which will best meet the modification brief |
| | | 2.4 | Discuss shortlist alternatives with relevant stakeholders and obtain 'sign off' for the chosen approach. |
| 3. | Select technically best equipment/unit/modification. | 3.1 | Complete technical specification for required modification incorporating feedback received |
| | | 3.2 | Compare specification with that of 'off the shelf' equipment where appropriate |
| | | 3.3 | Arrange for equipment suppliers to tender to the specification where necessary, following company procedures |
| | | 3.4 | Rank competing items by their compliance with the technical specification. |
| 4. | Compare hazard profile of possible modifications. | 4.1 | Organise a hazard analysis (eg, HAZOP) for the modification according to company <u>procedures</u> |
| | | 4.2 | <u>Ensure that all stakeholders are represented on the hazard analysis team</u> |
| | | 4.3 | Brief the hazard analysis team on the modification and the alternatives under evaluation |
| | | 4.4 | Eliminate alternatives which do not meet hazard requirements |
| | | 4.5 | Rank remaining competing items by safety performance. |
| 5. | Make final choice of solution. | 5.1 | Evaluate competing items by their economic performance (eg, life, maintenance, running costs) and rank by total lifetime cost |
| | | 5.2 | Seek further information where necessary to allow a rational selection to be made |
| | | 5.3 | Choose the modification which meets all required minimum standards and will provide the best solution |
| | | 5.4 | Verify choice in discussion with production and engineering managers and other key stakeholders |
| | | 5.5 | Arrange for order to be placed, following company <u>procedures</u> . |
| 6. | Check and commission modification. | 6.1 | Undertake precommissioning activities |
| | | 6.2 | Complete safety acceptance documentation |
| | | 6.3 | Identify, record and report problems or non-conformances |
| | | 6.4 | Conduct trials/test runs |
| | | 6.5 | Record and report performance data |
| | | 6.6 | Bring the plant/plant systems/pipeline on line. |

- 7. Complete modification.
 - 7.1 Evaluate performance of modification
 - 7.2 Make adjustments as required
 - 7.3 Accept (or otherwise) the equipment/unit (and ensure payment flows)
 - 7.4 Ensure plant procedures and training material updated
 - 7.5 Ensure plant drawings and engineering specifications are updated
 - 7.6 Complete all other required paperwork.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	2
Using mathematical ideas and techniques	3
Solving problems	3
Using technology	3

RANGE STATEMENT

The need for the modification may arise from a continuous improvement project, as a result of an analysis of plant performance or from any other source. The modification may require the selection of any number of items of equipment such as:

pumps

heat exchangers

mixers

separators

columns

reaction kettles.

Classes of equipment (see element 2) means the selection between different members of an overall class such as:

heat exchangers - various types of shell and tube, plate, etc

mixers - propellers, impellers, jet mixing, etc

packed columns - rings, saddles, etc

kettles --jacketed, coiled, etc.

Required minimum standards include:

OHS legislative requirements related to plant

Industry and enterprise OHS standards

Enterprise standards related to maintenance

Output requirements

Economic performance

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or Federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of this unit of competency as modifications may not occur with sufficient frequency to allow for assessment. Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to specify the requirements and then select the best solution to meet the necessary and desirable requirements.

In particular look to see that:

- safety, technical and economic aspects are all considered
- the decision made can be justified on those criteria
- all key stakeholders are kept well informed and agree with the decisions
- the modification, and particularly its timelines, are a good fit for the overall plant requirements
- obvious problems in related plant areas are recognised and an appropriate contribution made to their solution.

This will typically be assessed by a modification project on an operating plant. One complex project, or a number of simple projects, are required to demonstrate competence.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

It may be appropriate to assess this unit concurrently with:

- PMACOM400A Develop plant documentation
- PMAOHS401A Assess risk.

Essential knowledge

Demonstration of competence in this unit must include knowledge of the following:

- the operations of the plant and each major unit in it
- the principles of operation of the equipment being investigated to the extent required to interpret technical specifications in a meaningful manner
- the basics of plant economics and whole of life costing
- hazard analysis principles (while it is beneficial, it is not expected that the candidate will be able to undertake HAZOP (or similar) analyses but will understand basic principles and be able to interpret and use the outcomes)
- typical hazards with the type of equipment being investigated
- OHS legislative requirements related to plant including registration and documentation requirements related to modification of registered plant

Prerequisites

This unit has prerequisites of:

- PMAOPS400A Optimise operating systems OR
- PMAOPS401A Trial new process/product

AND

- PMCOPS540A Analyse equipment performance OR
- PMAOPS511A Determine energy transfer loads OR
- PMAOPS512A Determine mass transfer loads.

PMAPER200C

Unit Descriptor

Work in accordance with an issued permit

This competency unit aims to ensure that people working under a permit to work understand the system, know the limitations of the permit under which they are working and comply with all the requirements of the permit.

This unit covers the basic competency of working under a permit. Where entry to a confined space is required, then PMAPER205A Enter confined space is also required. The standby person competencies are covered by PMAPER201B Monitor and control work permits. The issuing of permits is covered by PMAPER300B Issue work permits or PMAPER302A Issue work permits (hot work/confined spaces)

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Identify the scope of the permit. | 1.1 Identify the need for a work permit(s) for the work to be carried out
1.2 Identify the type of work permit required
1.3 Check that work to be done complies with the permit type
1.4 Check that the scope and location of work comply with the permit issued. |
| 2. Prepare for permitted work. | 2.1 Maintain safe working conditions and environment by using available <u>isolation procedures</u> , safety equipment and emergency <u>procedures</u>
2.2 Monitor plant conditions and <u>hazards</u> to ensure work under the permit remains safe
2.3 Ensure that appropriate safety equipment and clothing are selected and worn as required by the permit and relevant <u>procedures</u>
2.4 Inspect work area to ensure safety and compliance with permit requirements and <u>procedures</u> . |
| 3. Work in accordance with an issued permit. | 3.1 Use required hazard reduction/control measures
3.2 Comply with requirements of the permit including standby personnel if required
3.3 Ensure compliance with scope, location and timeframe specified in the permit or seek reauthorisation as required. |

- 4. Complete permit to work.
 - 4.1 Formally seek and receive authorised extensions to the permit when required
 - 4.2 Withdraw permit when work ceases for an extended period
 - 4.3 Obtain new permits or have existing permit revalidated before work is recommenced
 - 4.4 Check the work conducted against the issued permit to ensure that all the nominated work requirements have been satisfied
 - 4.5 Monitor general housekeeping to ensure that the site has been left in a clean and safe condition
 - 4.6 Communicate status of the work conducted and the results of the permit to relevant personnel
 - 4.7 Complete documentation as required and have permit signed off when job is completed.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	1

RANGE STATEMENT

This unit typically applies to all work done by maintenance staff and contractors, and also to any other non-process work performed on the plant. All work is to be conducted using the appropriate personal protective equipment.

The types of work permits may include:

- cold work/general permit to work
- excavation
- hot work
- vehicle entry
- minor repairs
- working at heights
- other special permits.

Note that entry to a confined space is covered by *PMAPER205A Enter confined space*. The Australian standard (AS2865) definition given for confined space entry is used in this Training Package,

All operations are performed in accordance with standard operating procedures (SOPs).

Checks to ensure a workplace is safe may include:

- process isolations complete
- mechanical and electrical isolations in place
- atmospheric testing complete and atmosphere safe or if not safe and cannot be made safe then appropriate measures are implemented as per SOPs
- relevant personnel informed of work and agree that it is safe and appropriate to proceed

Safety equipment may include:

- eye protection, eg, goggles
- ear protection
- gloves
- clothing
- respirators and masks
- helmets
- safety footwear.

The application of this competency should comply with regulatory frameworks, such as:

- legislation/codes
- OHS legislation, codes of practice and guidance material
- EPA
- National and Australian standards
- licence and certification requirements
- internal permit control system.

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which may include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to distinguish between situations requiring the major types of permit and to list the major requirements of each type of permit. The emphasis should be on the ability to stay out of trouble rather than on recovery from a disaster.

It is essential that competence is demonstrated in the ability to:

- provide reasons for a permit system
- recognise the importance of different work permits
- comply with permit conditions including the wearing of appropriate PPE
- take appropriate action to resolve faults or report faults to appropriate personnel
- explain and implement incident response procedures.

Consistent performance should be demonstrated. In particular look to see that :

- communications are timely and effective
- deviations from permit conditions are recognised, reported, corrected and reauthorisation arranged
- actions specified in the permit/standard procedures are carried out
- all safety procedures are followed.

These aspects may be best assessed using a range of simulations/scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new or unusual situations which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of the relevant OHS and environmental requirements, in particular those relating to various situations requiring work permits, with an ability to implement the requirements in a manner that is relevant to the job. Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and in a manner relevant to the job.

Sufficient knowledge of all types of permits is required to ensure work is not carried out without the correct permit. This includes recognising hot work and confined spaces.

Competence includes the ability to:

- access and interpret information relevant to specific tasks eg labels, MSDSs hazchem signs
- identify changes to conditions which may lead to the permit being revoked before the job is completed
- describe and/or explain:
 - hazards associated with tasks covered by the permit
 - types of tests required for the issue of work permits - the types of tests to include:
 - atmospheric/oxygen/breathability
 - flammability/explosivity
 - toxicity/TWA
 - temperature
 - humidity
 - the impact of the regulatory framework and organisation procedures under which the permit operates upon the particular job(s) requiring the permit

The regulatory framework to include:

- OHS
- EPA
- OHS authorities and NOHSC
- licence requirements
- company policy and permit control systems.

Prerequisites

This unit has no prerequisites.

PMAPER201C

Unit Descriptor

Monitor and control work permits

This competency covers the monitoring of the operational conditions in which a permit to work has been issued, and the required activities and functions associated with the production/ process of chemical, hydrocarbons, oil, and other process manufactured products. This role may be carried out by the standby person or other appropriately qualified persons.

While this competency carries with it high levels of responsibility the role is usually prescribed by the permit process and may be exercised by any competent operator.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Identify and monitor permit conditions. | 1.1 Identify permit requirements
1.2 Monitor permit holder and conditions to ensure that the work being conducted conforms to the issued permit requirements
1.3 Identify and communicate changes in the operating conditions or requirements of the permit to permit holders to ensure they are kept aware of any <u>hazards</u> . |
| 2. Monitor work permit systems. | 2.1 Control work activities to comply with the enterprise or site's work permit system and safety <u>procedures</u>
2.2 Check and verify the permit holder's knowledge of the issued permit and its requirements before allowing any repair or maintenance work to be undertaken on the production/process equipment
2.3 Undertake site inspections to ensure that the work to be undertaken is in sequence and completed in a safe and co-ordinated manner
2.4 Identify <u>hazards</u> , and confirm with those undertaking the permitted work that control measures, as defined in the permit are established. |
| 3. Identify and action non-compliance. | 3.1 Identify conditions of active permits
3.2 Report and record incidents of non-compliance according to procedures
3.3 Take corrective action upon incidences of non-compliance with permit conditions through the withdrawal or suspension of the issued permit. |
| 4. Confirm compliance with permit. | 4.1 Complete checklists in accordance with standard <u>procedures</u>
4.2 Document and communicate findings to appropriate personnel. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

The application of this unit is defined by the level and area of responsibility.

Legislative and site specific safety procedures and/or requirements, including in hazard identification, assessment and application of control measures, must be met.

Compliance is required with:

- legislation/codes
- OHS
- EPA
- OHS authorities and NOHSC
- licence and certification requirements
- other relevant standards
- workplace specific permit control system.

Monitor means continual personnel presence to observe conditions of the workplace and work practices to ensure compliance with permit conditions.

Corrective action may include:

- ceasing job
- leaving the job site safe if it is safe and practical to do so
- report reason for ceasing job and request new permit when safe.

Resources and equipment used in this unit may include:

- danger tags and lockouts
- out of service tags
- blinds/blanks
- blind/blank list
- gas testers and monitors
- lights
- ladders
- cathodic protection bonds
- barricades
- signage
- communications equipment
- process and equipment drawings.

The types of work permits may include:

- evacuation
- clearance
- hot work
- vehicle entry
- confined space
- minor repairs
- working at heights
- other special permits.

Safety equipment may include:

- eye protection, eg, goggles
- ear protection
- gloves
- clothing
- respirators and masks
- helmets.

Indicative functions include:

- supervision/monitoring of contractors
- verification of:
 - permits
 - licences
 - tests
- document control
- compliance with legislation/codes.

This unit may be applied to either an individual or team related context within the workplace.

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which may include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to distinguish between situations requiring the different types of permit and to list the requirements of each type of permit.

It is essential that competence is demonstrated in the ability to:

- explain the reasons for issuing work permits and for monitoring compliance
- recognise the importance of different work permits
- monitor and control multiple work permits
- apply OHS, permit and other appropriate procedures
- take appropriate action to resolve faults or report faults to appropriate personnel
- explain and implement emergency procedures.

Consistent performance should be demonstrated. In particular look to see that:

- communications are timely and effective
- deviations from permit conditions are recognised, reported, corrected and reauthorisation arranged
- action specified in the permit/standard procedures is carried out
- all safety procedures are followed.

Aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new or unusual situations which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of permit requirements sufficient to distinguish between situations requiring permits and then implementing the appropriate corrective action where required.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements, along with the ability to implement them within appropriate time constraints and in a manner relevant to the job.

Competence includes the ability to:

- apply and/or explain:
 - awareness of hazards associated with the permit
 - Australian Standard AS2865 - Safe working in a confined space and relevant legislation
 - identification of container and goods coding and HAZCHEM markings
 - production workflow sequences and requirements for working in confined spaces
 - focus of operation of work systems and equipment
 - application of relevant agreements, codes of practice and other legislative requirements
 - hazards of the materials and process and appropriate hazard control procedures
 - identification and correct use of equipment, processes and procedures
 - planning own work including predicting consequences and identifying improvements

as is relevant to the practical completion of the job.

Demonstration of competence in this unit should include knowledge of the following as appropriate to the process:

- blank/blind lists and P&IDs
- tagging procedures
- isolation procedures
- incident response procedures, including evacuation
- gas types, toxicity and explosivity and limits of each
- oxygen levels
- area knowledge including plant and processes
- permit types and limitations
- static electricity and cathodic protection
- product tolerances and specifications
- environmental hazards
- hot work protective measures
- columns
- vessels
- fire fighting equipment
- blinds/blanks
- pumps
- compressors
- prime movers
- valves.

An understanding of alarm and communication systems is required.

The regulatory framework to include:

- OHS
- EPA
- OHS authorities and NOHSC
- licence and certification requirements
- company policy and permit control systems.

Prerequisites

This unit **has** the following prerequisites:

PMAPER200B Work in accordance with an issued permit

.

PMAPER205B

Enter confined space

Unit Descriptor

This competency covers the control of entry to confined spaces, for maintenance, servicing of vessels or other necessary reasons. Work in/entry to confined spaces shall conform to relevant legislation and AS2865/2001, or its authorised update or replacement.

It is expected that all persons entering the confined space, and the standby person will be competent to enter confined space. It is required that all team members, will be trained in incident response including first aid or CPR.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---------------------------------------|---|
| 1. Assess confined space for entry. | <ul style="list-style-type: none"> 1.1 Confirm and verify the purpose of the required entry 1.2 Identify and assess hazards within/around the <u>confined space</u> 1.3 Ensure a risk assessment associated with entry of the confined space is conducted and documented 1.4 Identify and document relevant controls 1.5 Make confined space ready for entry in compliance with <u>procedures, relevant legislation</u> and AS2865 1.6 Confirm and verify that the conditions of the permit reflect the risk assessment |
| 2. Use safety equipment and clothing. | <ul style="list-style-type: none"> 2.1 Select and erect required protective equipment, apparatus and signs as defined in the <u>confined space</u> entry permit requirements 2.2 Select, fit and wear designated personal protective clothing and equipment, including lifelines and harnesses as defined in the <u>confined space</u> entry permit requirements 2.3 Select, test and use appropriate instruments and monitors for pre entry testing and continuous monitoring of the confined space atmosphere. |
| 3. Control confined space entry. | <ul style="list-style-type: none"> 3.1 Ensure designated work complies with confined space permit requirements 3.2 Arrange re authorisation/reissue of permit where there is any change to work undertaken 3.3 Complete confined space entry logs, ensuring that all entry and re entry of persons working within the confined space are accurately recorded 3.4 Maintain communications with all relevant personnel to ensure safety 3.5 Raise the alarm if a rescue needs to be attempted |

PMAPER205B Enter confined space

- 4. Conclude confined space operations
 - 4.1 Recover, clean, service and store equipment according to procedures and manufacturers guidelines
 - 4.2 Complete appropriate documentation including withdrawal of permits and records related to use and servicing of equipment
 - 4.3 Report any issues including signs and symptoms of operational stress, equipment malfunctions.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

The Australian standard (AS2865) definition given for confined space entry is used in this Training Package, viz:

- a) an enclosed or partially enclosed space which-
- b) is at atmospheric pressure during occupancy
- c) is not intended or designed primarily as a place of work
- d) may have restricted means for entry and exit, and
- e) may-
 - i) have an atmosphere which contains potentially harmful levels of contaminant;
 - ii) not have a safe oxygen level; or
 - iii) cause engulfment.

A confined space is determined in part by the hazards associated with a defined set of circumstances (restricted entry or hazardous atmosphere, risk of engulfment) and not just with work performed in a restricted space. In this Training Package work in a 'tight spot' which is not a confined space as defined has been referred to as a 'restricted space'.

Examples of confined space include (but are not restricted to):

storage tanks, tank cars, process vessels, boilers, pressure vessels, silos and other tank-like compartments

open-topped spaces such as pits or degreasers

pipes, sewers, shafts, ducts and similar structures

shipboard spaces entered through a small hatchway or access point, cargo tanks, cellular double bottom tanks, duct keels, ballast and oil tanks and void spaces (but not including dry cargo holds).

A person is deemed to have entered a confined space when their head (ie. the breathing zone) or upper part of the body is within the boundary of the confined space. (Note that inserting an arm for atmospheric testing is not considered an entry to a confined space).

Risk assessment is required prior to entry to a confined space. The risk assessment checklists may be derived from a standard or code of practice developed by the enterprise to meet relevant legislation and standards. The outcomes of the risk assessment should be documented and retained.

Preparation for entry to a confined space will be in accordance with AS2865, or its authorised update or replacement, and local procedures and may include as appropriate:

- draining

- blanking/blinding of lines
- double block and bleed of lines
- removal of spool piece
- immobilisation of any moving devices
- depressuring
- venting/purging (to a safe area)
- atmospheric testing and monitoring
- other requirements as determined by risk assessment and appropriate to the confined space as required by legislation or AS2865.

Safety equipment may include:

- respiratory protective devices
- self contained breathing apparatus (SCBA)
- long distance breathers
- lifting and lowering devices, safety belts, harnesses and lines
- safety footwear
- gloves
- coveralls
- intrinsically safe torches
- hearing protection
- eye protection
- head protection
- portable gas detectors and monitors
- intrinsically safe communication equipment
- incident response equipment including rescue, first aid, and fire suppression
- spill kits.

Confined space permit should include details of:

- location, description and duration of work to be done
- hazards that may be encountered
- atmospheric test and monitoring requirements and results
- authorisation
- Isolation, lock out, tag out processes
- personal protective equipment and clothing
- other precautions (signs, barricades etc.)
- size of work crew
- stand-by personnel and emergency response & rescue arrangements
- other requirements as determined by risk assessment and in accordance with legislative requirements and relevant Australian Standard including Appendix H of AS 2865

A 'competent person' is a person who has, through a combination of training, education and experience, acquired and skills enabling that person to correctly perform a specified task.

Checks to ensure a workplace is safe include:

- mechanical and electrical isolations in place
- atmospheric testing complete and atmosphere safe
- process isolations complete
- relevant personnel informed of work and agree that it is safe and appropriate to proceed

All operations are performed in accordance with standard operating procedures.

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Training and assessment for this unit will comply with the requirements of AS2865, or its authorised update or replacement. This Standard requires that trainers and assessors of confined space competencies are themselves knowledgeable and experienced in confined space work and requirements for training according to relevant legislation and standards. The standard also requires that all persons with work related to confined spaces are reassessed at appropriate intervals to ensure ongoing competency to perform relevant work.

Assessment for this unit of competency will be by simulation or may be assessed 'live' under close supervision by an appropriately experienced person. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency.

Assessment will occur over a range of situations which may include disruptions to normal, smooth operation.

Simulation will be required to allow for timely and appropriate assessment of this unit of competency. Simulation should be based on actual plant conditions and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays. An assessment in a (relatively safe) confined space is required.

This unit of competency requires a body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.

The emphasis should be on the ability to complete the required tasks.

As working in a confined space is inherently hazardous it is essential that the worker be able to demonstrate:

- the ability work within a confined space
- compliance with the permit conditions
- the testing and use of the approved breathing apparatus supplied by the enterprise
- identification of problems as they arise
- the ability to take appropriate action to resolve faults/problems or report faults/ problems to appropriate personnel
- ability to apply knowledge of the legislation, relevant standards and site/enterprise's risk assessment guidelines for confined spaces
- selection, use and maintenance of appropriate PPE
- use of communication equipment and processes applicable to confined space work
- completion of documents and records relevant to confined space work .

Consistent performance should be demonstrated. In particular look to see that :

- communications are timely and effective
- deviations from permit conditions are recognised, reported and corrected and the permit is re-authorized or re-issued by competent person
- actions specified in the permit/standard procedures are carried out
- all safety procedures are followed.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new or unusual situations which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications

Assessment may require a simulated confined space. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Training and assessment will require access to testing and monitoring equipment, appropriate PPE, incident response equipment and enterprise procedures.

Other assessment advice

A demonstrated competence in first aid techniques including CPR, use of fire suppression and other incident response equipment is essential.

This unit may be co-assessed with units related to use of breathing apparatus, confined space rescue and use of incident response equipment

Essential knowledge

Knowledge and understanding of relevant legislation and AS2865/2001, or its authorised update or replacement, is essential. Australian Standard HB 213-2003 Guidelines for Safe Working in Confined Spaces is also a useful reference.

Knowledge of the enterprise's confined space procedures is required.

Demonstration of competence in this unit must include knowledge of the following :

- definition of confined space/ability to recognise a confined space and the identification of confined spaces in their workplace
- hazards associated with confined space entry
- hazard identification and risk assessment processes relevant to confined space work
- the site/enterprise's specific incident response and rescue requirements
- the permit to work system and the limitations and conditions of the issued permit and authorisation requirements .

Prerequisites

This unit has the prerequisite of:

PMAPER200B Work in accordance with an issued permit.

PMAPER300C**Unit Descriptor****Issue work permits**

This competency unit addresses the need for personnel who issue work permits to understand the permit system, know the limitations of each permit and make decisions regarding the need for and correct use of each permit. This competency unit excludes the issue of hot work and confined space work permits, however, sufficient knowledge regarding these permits is required to ensure the correct permit is issued.

Unit Sector

No sector assigned

ELEMENT**PERFORMANCE CRITERIA**

- | | |
|---|--|
| 1. Identify need for work permit. | <ul style="list-style-type: none"> 1.1 Understand work permit system 1.2 Identify and confirm with appropriate personnel the need for work permit 1.3 Identify the correct permit for each situation. |
| 2. Prepare work site for authorised work. | <ul style="list-style-type: none"> 2.1 Undertake an inspection of the worksite 2.2 Identify OHS and environmental requirements 2.3 Conduct hazard identification and risk assessment 2.4 Prepare worksite in accordance with standard operating <u>procedures</u> and specified work permit conditions 2.5 Check permit conditions and report to appropriate personnel 2.6 Identify need for and carry out testing in accordance with standard operating <u>procedures</u> |
| 3. Raise and issue work permits. | <ul style="list-style-type: none"> 3.1 Ensure documentation of permit conditions 3.2 Ensure appropriate testing carried out and results documented on permit 3.3 Check that permit conditions are met (ie validate permit) 3.4 Complete permit and follow procedures to authorise 3.5 Ensure recipient(s) is advised of and understands requirements of permit 3.6 Ensure recipient(s) signs permit |
| 4. Monitor work for compliance. | <ul style="list-style-type: none"> 4.1 Undertake regular site inspections 4.2 Monitor conditions and work progress and respond appropriately to changing conditions and circumstances 4.3 Ensure permit currency and revalidate as required 4.4 Ensure permit is displayed in prominent position 4.5 Identify and, act on incidences of non-compliance and report promptly to relevant personnel 4.6 Report any issues or equipment failures in accordance with procedures |

- 5. Withdraw work permit.
 - 5.1 Inspect job status
 - 5.2 Check that work undertaken satisfies permit conditions
 - 5.3 Ensure that worksite is ready for a safe return to working conditions
 - 5.4 De-isolate, remove tags as appropriate
 - 5.5 Sign off documentation in accordance with standard operating procedures and withdraw permit as appropriate
 - 5.6 Communicate worksite and process status to relevant personnel.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

This competency is restricted to the issue of general work permits only.

The types of permit include:

- cold work
- excavation
- vehicle entry
- minor repairs
- working at heights
- other relevant permits (excluding hot work and confined space).

Indicative functions include:

- supervision/monitoring of contractors
- testing - types of testing include:
 - atmospheric including explosivity, flammability, toxicity
 - temperature
 - humidity
 - combustibles
 - oxygen - enriched or reduced
 - challenging/checking performance of monitoring and testing equipment against a standard sample
- compliance with legislation/codes including:
 - relevant OHS legislation, codes of practice and guidance material
 - EPA
 - National and Australian standards
 - licence and certification requirements
 - verification of isolations and confirming removal of harmful sources of energies

Preparation of worksite includes:

- mechanical, electrical and process isolations
- de-energising all sources of energy/pressure
- purging of lines
- lock out/tag out procedures
- blinding/blanking lines

Requirements identified on the permit may include testing of atmospheric conditions, ventilation and control measures such as isolation, barriers, tag out/lockout signs, communications, incident response.

A 'competent person' is a person who has, through a combination of training, education and experience, acquired knowledge and skills enabling that person to correctly perform a specified task.

Safety structures and controls may include automatic plant shut down buttons, cords/lanyards, alarms, barriers, guards,

earth leakage devices, tag out/lock out procedures, warning lights.

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which may include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to distinguish between situations requiring the major types of permits and to list the major requirements of each type of permit.

It is essential that competence is demonstrated in the ability to:

- correctly identify situations requiring work permits
- identify and apply legislative requirements, relevant standards and codes of practice (which may be incorporated in the organisation's procedures) to the issuing of work permits
- list the requirements of each type of permit
- plan own work process within workplace procedures and explain the reasons for the steps in the process.

Consistent performance should be demonstrated. In particular look to see that:

- correct permit issued
- hazards are identified and controlled in the permit by applying the hierarchy of control
- required PPE is specified
- problems are anticipated
- problems are efficiently resolved

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new or unusual situations which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of the materials, equipment and process sufficient to recognise situations requiring different types of work permits and then implement the appropriate action.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements under which permit systems operate, along with the ability to implement them within appropriate time constraints and in a manner relevant to the job. Knowledge of the relevant requirements under AS2865

Competence includes the ability to:

- select appropriate PPE
- apply and/or explain:
 - types of permits and what they cover
 - hazards associated with each type of permit
 - permit control system
 - hazards of the area for which permit is being issued
 - hazards that may be created by the interactions of the permit, the process and the plant area
 - identification of container and goods coding and HAZCHEM markings
 - production workflow sequences
 - focus of operation of work systems and equipment
 - application of relevant agreements, codes of practice and other legislative requirements
 - hazards of the materials and process and appropriate hazard control procedures including hierarchy of control
 - identification and correct use of equipment, processes and procedures
 - conducting and interpreting tests for contaminant gases
 - 'challenge' the calibration of testing equipment.
- Some sources of underpinning OHS knowledge include appropriate OHS and Dangerous Goods legislation, Australian Standards and NOHSC/State or Territory codes such as:
 - NOHSC:1010 - National Standard for Plant
 - AS4024.1 Safeguarding of machinery - general principles
 - NOHSC:1003 National exposure standards for atmospheric contaminants in the occupational environment

The regulatory framework to include:

- OHS
- EPA
- OHS authorities and NOHSC
- licence and certification requirements
- company policy and permit control systems
- other relevant standards.
- Issuing a permit for work in confined spaces requires

competence in PMAPER302A Issue work permits (hot work /confined space).

Prerequisites

This unit **has** the prerequisite of:

PMAOHS200A Participate in workplace safety procedures.

PMAPER302B

Unit Descriptor

Issue work permits (hot work/confined space)

This competency unit addresses the need for personnel who issue work permits to understand the permit system, know the limitations of each permit and can make decisions regarding the need for and correct use of each permit. This competency unit is specific to the issue of hot work and confined space work permits, however, sufficient knowledge regarding all work permits is required to ensure the correct permit is issued.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|-----------------------------------|---|
| 1. Identify need for work permit. | 1.1 Understand work permit system
1.2 Identify and confirm with appropriate personnel the need for work permit
1.3 Identify the correct permit for each situation. |
| 2. Prepare work site. | 2.1 Undertake an inspection of the worksite
2.2 Identify OHS and environmental requirements
2.3 Conduct hazard identification and risk assessment
2.4 Prepare worksite in accordance with standard operating <u>procedures</u> and specified work permit conditions
2.5 Check permit status conditions and report to appropriate personnel
2.6 Identify need for and carry out testing in accordance with standard operating <u>procedures</u> . |
| 3. Raise and issue work permits. | 3.1 Ensure documentation of permit conditions
3.2 Ensure appropriate testing carried out and results documented on permit
3.3 Check that permit conditions are met (ie validate permit)
3.4 Complete and authorise permit
3.5 Ensure recipient(s) is advised of and understands requirements of permit
3.6 Ensure recipient(s) signs permit. |
| 4. Monitor work for compliance. | 4.1 Undertake regular site inspections
4.2 Monitor conditions work progress and respond appropriately to changing conditions and circumstances
4.3 Ensure permit currency and revalidate as required
4.4 Ensure permit is displayed in prominent position
4.5 Identify and act on incidences of non-compliance and report promptly to relevant personnel
4.6 Report any issues or equipment failures in accordance with procedures. |

- 5. Withdraw work permit.
 - 5.1 Inspect job status
 - 5.2 Check that work undertaken satisfies permit conditions
 - 5.3 Ensure that worksite is ready for safe return to working conditions
 - 5.4 Sign off documentation in accordance with standard operating procedures and withdraw permit as appropriate
 - 5.5 Communicate worksite and process status to relevant personnel.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

This competency is restricted to hot work and confined space work permits.

A hot work permit is required when using equipment that generates heat, sparks, flames or other potential sources of ignition in an atmosphere that may be flammable.

This can include equipment such as:

- vehicle entry
- welders
- power tools.

The Australian standard definition given for confined space entry is used in this Training Package, viz: AS2865

an enclosed or partially enclosed space which-

- a. is at atmospheric pressure during occupancy
- b. is not intended or designed primarily as a place of work
- c. may have restricted means for entry and exit, and
- d. may-

(i) have an atmosphere which contains potentially harmful levels of contaminant;

(ii) not have a safe oxygen level; or

(iii) cause engulfment .

Examples include but may not be limited to:

storage tanks, tank cars, process vessels, boilers, pressure vessels, silos and other tank-like compartments

open-topped spaces such as pits or degreasers

pipes, sewers, shafts, ducts and similar structures

shipboard spaces entered through a small hatchway or access point, cargo tanks, cellular double bottom tanks, duct keels, ballast and oil tanks and void spaces (but not including dry cargo holds).

Risk assessment is required prior to entry to a confined space, and so prior to the issuing of a permit. The risk assessment checklists may be derived from a standard or code of practice developed by the enterprise to meet relevant legislation and standards. The outcomes of the risk assessment should be documented and retained.

By contrast, any area where space is limited is referred to as 'restricted space'

Knowledge of the types of permit are to include:

- hot work
- confined space/confined space entry
- general permits to work
- other permits to work relevant to the work area.

Preparation for entry to a confined space will be in accordance with AS2865, or its authorised update or replacement, and local procedures and may include as appropriate:

- draining
- blanking/blinding of lines
- double block and bleed of lines
- removal of spool piece
- immobilisation of any moving devices
- depressuring
- venting/purging (to a safe area)
- atmospheric testing and monitoring
- other requirements as determined by risk assessment and appropriate to the confined space as required by legislation or AS2865.

Safety equipment may include:

- respiratory protective devices
- self contained breathing apparatus (SCBA)
- long distance breathers
- lifting and lowering devices, safety belts, harnesses and lines
- safety footwear
- gloves
- coveralls
- intrinsically safe torches
- hearing protection
- eye protection
- head protection
- portable gas detectors and monitors
- intrinsically safe communication equipment
- incident response equipment including rescue, first aid, and fire suppression
- spill kits.

Confined space permit should include details of:

- location, description and duration of work to be done
- hazards that may be encountered
- atmospheric test and monitoring requirements and results
- authorisation
- Isolation, lock out, tag out processes
- personal protective equipment and clothing
- other precautions (signs, barricades etc.)
- size of work crew
- stand-by personnel and emergency response & rescue arrangements
- other requirements as determined by risk assessment and in accordance with legislative requirements and

relevant Australian Standard including Appendix H of AS 2865

A 'competent person' is a person who has, through a combination of training, education and experience, acquired skills enabling that person to correctly perform a specified task.

Where the permit is for hot work, and that hot work is welding, then the relevant standards for welding should be consulted and applied. These standards include:

- AS 1558-1973 Protective Clothing for Welders
- AS 1674.1-1997 Safety in Welding and Allied Processes, Part 1 Fire Precautions
- AS 1674.2-1990 Safety in Welding and Allied Processes, Part 2 Electrical
- AS 3195-199 Approval and Test Specification-Portable Machines for Electric Arc Welding and Allied Processes
- AS 3957-1991 Light-Transmitting Screens and Curtains for Welding Operations.

Indicative functions include:

- supervision/monitoring of contractors
- testing - types of testing include:
 - atmosphere including explosivity, toxicity, breathability
 - temperature
 - humidity
 - toxicity
 - combustibles
 - oxygen - enriched or reduced
- compliance with legislation/codes including:
 - OHS
 - EPA
 - Worksafe/Workcover or equivalent State/Territory guidelines
- licence requirements
- verification of isolations and confirming removal of harmful sources of energies

Preparation of worksite includes:

- mechanical, electrical and process isolations
- de-energising all sources of energy/pressure
- lock out/tag out procedures

Requirements identified on the permit may include testing of atmospheric conditions, ventilation and control measures such as isolation, barriers, tag out/lockout signs, communications, incident response.

A 'competent person' is a person who has, through a combination of training, education and experience, acquired knowledge and skills enabling that person to correctly perform

a specified task.

Safety structures and controls may include automatic plant shut down buttons, cords/lanyards, alarms, barriers, guards, earth leakage devices, tag out/lock out procedures, warning lights.

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Training and assessment for this unit will comply with the requirements of AS2865, or its authorised update or replacement. This Standard requires that trainers and assessors of confined space competencies are themselves knowledgeable and experienced in confined space work and requirements for training according to relevant legislation and standards. The standard also requires that all persons with work related to confined spaces are reassessed at appropriate intervals to ensure ongoing competency to perform relevant work.

The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which may include disruptions to normal, smooth operation.

Simulation will be required for assessment of this unit of competency. Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to distinguish between situations requiring the major types of permits and to list the major requirements of each type of permit. A greater emphasis should be placed on knowledge surrounding hot work and confined space permits.

It is essential that competence is demonstrated in the ability to

- correctly identify situations requiring work permits
- identify and apply legislative requirements, relevant standards and codes of practice (which may be incorporated in the organisation's procedures) to the issuing of work permits
- list the requirements of each type of permit
- plan own work process within workplace procedures and explain the reasons for the steps in the process.

Consistent performance should be demonstrated. In particular look to see that:

- correct permit issued
- hazards are identified and controlled in the permit by applying the hierarchy of control
- required PPE is specified
- problems are anticipated
- problems are efficiently resolved

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new or unusual situations which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications

A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Knowledge and understanding of the materials, equipment and process sufficient to recognise situations requiring work permits, with greater emphasis on hot work and confined space work permits, and then implementing the appropriate action.

Knowledge of the enterprise's standard procedures and work instructions and relevant regulatory requirements under which permit systems operate, along with the ability to implement them within appropriate time constraints and in a manner relevant to the job. Knowledge of the relevant requirements under AS2865.

Competence includes the ability to:

- select appropriate PPE

apply and/or explain:

- Australian Standard AS2865 - Safe working in a confined space
- types of permits and what they cover
- hazards associated with each type of permit
- permit control system
- hazards of the area for which permit is being issued
- hazards that may be created by the interactions of the permit, the process and the plant area
- interpretation of container and goods coding and HAZCHEM markings
- application of relevant agreements, codes of practice and other legislative requirements
- hazards of the materials and process and appropriate hazard control procedures including hierarchy of control
- identification and correct use of equipment, processes and procedures
- conducting and interpreting required tests
- 'challenge' the calibration testing equipment.

Some sources of underpinning OHS knowledge include appropriate OHS and Dangerous Goods legislation, Australian Standards and NOHSC/State or Territory codes such as:

- NOHSC:1010 - National Standard for Plant
- AS4024.1 Safeguarding of machinery - general principles
- NOHSC:1003 National exposure standards for atmospheric contaminants in the occupational environment

The regulatory framework to include:

- OHS
- EPA
- OHS authorities and NOHSC
- licence requirements
- company policy and permit control systems
- other relevant standards..

Prerequisites

This unit **has** the prerequisite of:

PMAOHS200A Participate in workplace safety procedures

PMAPROC101B

Make measurements

Unit Descriptor

This competency covers the making or taking of measurements in a variety of sites and locations.

This competency is typically performed by plant operators who may be working individually or in a team environment.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Identify appropriate measurements. | 1.1 Select appropriate units on the measuring device
1.2 Select appropriate scale(s) on the measuring device. |
| 2. Perform measurements. | 2.1 Explain the range of results that may be obtained
2.2 Identify and take account of relevant external factors
2.3 Perform measurements using appropriate techniques
2.4 Compare the measurements against the range of expected results
2.5 Explain the need for calibration and use calibrated equipment to make measurements. |
| 3. Record result. | 3.1 Accurately record the result in the appropriate format
3.2 Record the result to the appropriate level of detail. |
| 4. Contribute to controlling hazards in work area. | 4.1 Identify hazards in work area
4.2 Assess risks arising from those hazards
4.3 Take appropriate action to control risks to procedures and duty of care. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

It typically is related to:

- making measurements using physical and chemical measuring equipment
- routine checking of the calibration of instruments
- recording results using either a manual or computer system.

The measuring instrument itself may be simple or complex, but the process of using it is a matter of following procedure/work instruction and reading off the numbers.

All operations are performed in accordance with standard operating procedures.

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the process sufficient to recognise non-standard situations and then determine appropriate action which is consistent with operating guidelines is required.

Thorough knowledge of enterprise standard operating procedures is required. Some appreciation of the plant's business goals is required as a basis for decision making and action.

Demonstration of competence in this unit must include knowledge of the following:

- basic units of measurement
- measuring devices, including gauges, dip-sticks, thermometers and the like
- graphs and scales.

Critical aspects

It is essential that the range of appropriate readings is known and the importance of a deviation from this normal range is understood. The importance of using instruments which are within calibration should be able to be explained (but not the process of calibration or the ability to calibrate). Where instruments have different scales, (eg, psi/kPa/N.m-2 red/black) the difference between the scales should be appreciated.

Concurrent assessment

Individual enterprises may choose to add prerequisites and corequisites relevant to their processes

Assessment context and methods

Competence in this unit should be assessed by observation over time on an operating plant. Where this is done, the timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.

Competence may also be assessed by use of a suitable simulation and/or pilot plant and/or a range of case studies/scenarios. A combination of these techniques should be used to ensure the competency is adequately assessed.

In all cases it is expected that the practical assessment will be supported by targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a manner as is appropriate to the required language and literacy levels of the operator.

Resource implications

Resources required include suitable access to an operating plant or equipment which allows for appropriate and realistic simulation. A bank of case studies/scenarios will also be required where these form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office, lunch room, etc. No other special resources are required.

PMASUP100B

Unit Descriptor

Apply workplace procedures

This competency covers the skills and knowledge required to complete own work activities. The integration of OHS as part these activities is required and this is specifically addressed in PMAOHS100A. It includes the awareness and application of workplace procedures, and an introduction to the industry, the company and the employee's role within the organisation.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Identify industry sector. | 1.1 Identify the industry sector
1.2 Recognise the major competitors in the industry and their products
1.3 Identify career opportunities within the industry sector
1.4 Explain the major external issues facing the industry. |
| 2. Identify products and customers. | 2.1 Identify company products
2.2 Identify needs of external customers in line with enterprise priorities
2.3 Identify needs of internal customers
2.4 Identify the role of quality processes in meeting product standards
2.5 Identify your role in meeting customer requirements. |
| 3. Recognise plant structure and processes. | 3.1 Identify key production sites/areas
3.2 Explain role of individual in organisational structure
3.3 Describe the production process within own work area and relationship with other parts of the production process. |
| 4. Identify workplace role and responsibilities. | 4.1 Identify company objectives
4.2 Identify organisational policies and guidelines in relation to job role
4.3 Describe key responsibilities including OHS of own section/team and functional area
4.4 Identify task requirements and work role
4.5 Explain individual role in achieving section/team, plant and company objectives. |
| 5. Follow workplace procedures. | 5.1 Identify existing sources of work instructions relevant to job role
5.2 Follow work instructions in undertaking tasks
5.3 Follow work instructions for recording process
5.4 Seek advice from relevant personnel in clarifying work instructions when appropriate. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This is a general competency that is performed by all operators in all areas of operation.

In large plants with multiple processes, it may apply to just one process in a plant if those processes do not interact with each other.

Sources of information may include:

- organisation's goals, objectives and targets
- business and performance plans
- access and equity principles and practice
- OHS policies, procedures and programs
- quality and continuous improvement processes and standards
- workplace procedures
- ethical standards
- workplace agreements and awards
- unions and industry associations.

It is applied within the limits of standard operating procedures and stringent requirements of occupational health and safety.

The OHS objectives and requirements are included in the organisation's objectives and policies and team role statements.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency (eg, elements 2 and 3). Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a routine body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Consistent performance should be demonstrated. In particular look to see that:

- industry sector and major issues facing the industry are recognised
- main internal and external customers are identified
- role of individual and team/section is identified in terms of meeting company objectives (including safety objectives) and customer requirements
- relevant workplace policies and procedures are identified and followed
- tasks are performed in accordance with safety requirements/the quality system/workplace procedures
- appropriate documentation as defined by procedures is correctly completed.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice	In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units. If competency has not already been achieved in PMAOHS100 then these units should be co-assessed.
Essential knowledge	<p>Competence includes an understanding of the products and functions of the organisation and the employee's role in completing tasks to meet customer, company and section/function objectives. In particular it includes the ability to:</p> <ul style="list-style-type: none">• understand relevant organisational policies, plans and procedures• identify production processes relevant to work role• identify work requirements and relevant workplace documents• request advice, effectively question and follow instructions• identify quality standards.
Prerequisites	This unit has no prerequisites.

PMASUP110A

Unit Descriptor

Relay and respond to information

This unit of competency covers being able to receive and pass on written and oral messages and to provide relevant information in response to requests within time lines. Everyday workplace language is used, including some mathematical language. The competency unit applies to a wide range of information sources and documentation.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Receive and relay oral and written messages. | 1.1 Understand the message
1.2 Accurately record the message
1.3 Relay message accurately to appropriate person or section within designated timelines. |
| 2. Interpret oral or written messages. | 2.1 Clarify message if necessary
2.2 Take appropriate action. |
| 3. Respond to information. | 3.1 Acknowledge and understand the request for information.
3.2 Access information from appropriate sources
3.3 Relay information to appropriate person or section. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

Communication may be from a range of social, cultural and ethnic backgrounds and maybe verbal or non verbal.

This competency includes the following indicative information sources and documentation:

- standard operating procedures
- material safety data sheets
- job cards
- maintenance logs
- enterprise policies, eg, telephone protocol, codes of practice.

This competency includes items of equipment such as:

- telephone
- two way radio
- computer.

Types of text may include:

- short sentences
- symbols
- codes
- signs
- sketches.
- Text may be conveyed in:
 - printed form
 - screen based.

Language may be:

- everyday workplace use
- technical terms.

All operations are performed in accordance with standard operating procedures.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency.

Simulation may be appropriate assessment for this unit of competency. Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/ scenarios and role plays.

This unit of competency requires a routine body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to provide and assess all required information and that the information provided both verbally and in writing is completed in a clear and concise manner that is easily understood by others and in accordance with workplace requirements.

Consistent performance should be demonstrated. In particular look to see that:

- written communication is clear, concise and accurate
- all information is provided in an efficient, effective, courteous and timely manner
- calls are answered within industry timelines
- messages are clear, concise and accurate
- listening is attentive
- information requests are identified and questions formulated to clarify work requirements or instructions.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice	<p>In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units. Consider co-assessment with:</p> <ul style="list-style-type: none">• PMASUP210A Process and record information.
Essential knowledge	<p>Competence to include the ability to apply and explain:</p> <ul style="list-style-type: none">• importance of workplace documentation• enterprise operational, quality and safety procedures• routine workplace documents• workplace codes including numbers, symbols, signs, colours and other codes.
Prerequisites	<p>This unit has no prerequisites.</p>

PMASUP120A

Unit Descriptor

Follow environmental work practices

This competency covers the awareness of operating personnel of environmental issues and responsibilities and their ability to work according to enterprise environmental policies and procedures to minimise environmental threats.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Follow workplace procedures for environmentally responsible work practices. | 1.1 Recognise and follow workplace <u>procedures</u> and work instructions for environmental work practices while under direct supervision, and seek clarification where doubts arise
1.2 Recognise environmental hazards and negative impacts in the workplace whilst under direct supervision and report to designated personnel according to workplace <u>procedures</u>
1.3 Respond to changes to work practices positively and promptly, in accordance with organisational requirements. |
| 2. Participate in the improvement of environmental work practices. | 2.1 Raise environmental issues with designated personnel in line with workplace policies and practices
2.2 Make suggestions for alternative workplace practices with reduced environmental impact. |
| 3. Respond to abnormal environmental discharge/ emission. | 3.1 Report abnormal discharge/emissions to appropriate personnel
3.2 Apply containment <u>procedures</u> in accordance with standard operating <u>procedures</u> where appropriate
3.3 Follow safety <u>procedures</u> correctly and utilise personal protective equipment as required. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency is performed by all operators in all plants. It reflects the industry commitment to minimise negative environmental impacts and meet the regulatory requirements on all plants and all personnel.

This competency unit includes:

- Awareness of the environment and the effects on the environment of the organisations:
 - liquid waste
 - solid waste
 - gas/fume/vapour/smoke emissions, including fugitive emissions
 - hazardous materials
 - excessive energy and water use
 - excessive noise

and the workplace practices that can be used to minimise or prevent these effects.

Indicative functions such as:

- monitoring of all sensors
- communication, using in-plant reporting system
- verbal
- electronic
- written
- initiating first response to an environmental incident in accordance with standard operating procedures (SOPs).

Resources such as:

- containment equipment
- personal protective equipment
- monitoring equipment
- waste segregation and recycling equipment.

Emissions/discharges include:

- noise
- light
- odour
- gas
- smoke
- vapour
- liquid and solids
- particulates
- fumes.

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to recognise potential situations requiring action and then in implementing appropriate corrective action. The emphasis should be on the ability to avoid critical environmental incidents rather than on recovery from a disaster.

Consistent performance should be demonstrated. In particular look to see that:

- deviations from desired conditions are recognised
- action specified in the standard operating procedures (SOPs) is carried out
- the impact of work practices/actions on the environment is understood.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems that may have been generated from the past incident history of the plant and incidents on similar plants around the world.

Resource implications	Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.
Other assessment advice	<p>In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.</p> <p>In a major hazard facility, it may be appropriate to assess this unit concurrently with:</p> <ul style="list-style-type: none">• PMAOHS100 Follow OHS procedures.
Essential knowledge	<p>Knowledge and understanding of the relevant OHS, environmental requirements and standard operating <u>procedures</u> (SOPs) with an ability to implement them in a manner which is relevant to the operation of the equipment item.</p> <p>Competence includes the ability to:</p> <ul style="list-style-type: none">• apply the standard operating <u>procedures</u> (SOPs)• recognise the environmental impacts of work practices and take steps to minimise those impacts• apply waste minimisation practices in the use of materials, water and energy• show an awareness of:<ul style="list-style-type: none">• external licensing requirements• internal environmental control standards• severity of environmental hazards of materials being handled• likely impact on the environment of materials and process
Prerequisites	This unit has no prerequisites.

PMASUP130B

Unit Descriptor

Follow established work plan

This unit of competency covers the ability to complete tasks individually or in a team context. The tasks involve established routines and procedures using allocated resources with access to readily available procedures and advice. Work plans may need to be modified with supervisor/team leader agreement to suit changing conditions and priorities.

Work activities may include:

organisation of materials and equipment

completion of tasks in accordance with schedule/plan

completion of relevant paperwork.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|------------------------------------|--|
| 1. Identify work activities. | 1.1 Identify team tasks if appropriate
1.2 Identify work activities that are allocated to the individual
1.3 Prioritise work activities as directed. |
| 2. Organise daily work activities. | 2.1 Break work activities down into small achievable components
2.2 Identify hazards and implement required controls
2.3 Record activities. |
| 3. Follow work plan. | 3.1 Locate relevant standard operating procedures
3.2 Undertake tasks in accordance with schedule/plan
3.3 Maintain output in accordance with schedule/plan
3.4 Follow prescribed and routine work related sequences. |
| 4. Modify work plan. | 4.1 Identify changing needs/conditions
4.2 Identify the safety implications of changes
4.3 Seek assistance from relevant personnel when difficulties arise
4.4 Review tasks and priorities in line with changing needs/conditions with a change of instruction from appropriate personnel |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

Work and tasks may be allocated through managers, supervisors, team leaders, work schedules or plans. They may be individual tasks and jobs or team function work schedules.

This competency includes the following indicative information sources and documentation:

- company policy and permit control systems
- standard operating procedures
- materials safety data sheets
- job cards
- maintenance logs
- plant drawings.

This competency includes items of equipment such as:

- plant equipment.

All operations are performed in accordance with standard operating procedures.

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency (eg, element 4). Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action. The emphasis should be on the ability to stay out of trouble rather than on recovery from a problem.

Consistent performance should be demonstrated. In particular look to see that:

- hazards are identified and controlled
- work schedules are interpreted and understood and instructions acted upon
- relevant procedures are followed
- resources and time are effectively and efficiently utilised
- potential disruptions or changed circumstances are recognised and work plans modified in conjunction with relevant personnel
- assistance is sought from relevant personnel when difficulties arise.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice	In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.
Essential knowledge	Competence to include the ability to apply and explain: <ul style="list-style-type: none">• enterprise quality, operational and safety procedures• importance of workplace documentation• routine work planning processes• potential safety implications of modifying the work plan• job outcomes, standards and priorities• equipment and processes used in the workplace• hazards associated with the process• methods of controlling the hazards according to procedures.
Prerequisites	This unit has no prerequisites.

PMASUP200B

Unit Descriptor

Implement production efficiencies

The competency covers the ability to identify and implement actions to achieve production targets and to suggest improvements. This unit applies to all employees who are required to participate in process improvement groups.

This unit does not cover maximisation of process/equipment efficiencies undertaken as part of the technician's normal role, which is covered in the relevant OPS competency unit.

The plant technician would:

understand the production process and recognise production inefficiencies within their area

participate in and implement strategies for improving production efficiencies.

Generally the plant technician would be part of a team in developing strategies to improve production efficiencies and may be expected to perform all parts of this unit. At all times they would be liaising and cooperating with other members of the team.

Prerequisite Unit(s)

PMASUP110A Relay and respond to information

PMAPROC101B Make measurements

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Identify raw material components and their application in production. | 1.1 Outline the physical and chemical properties of raw material components utilised in the production process
1.2 Construct a flow chart of the production process relevant to your area/plant
1.3 Outline parts of the production process where extra care and attention are required
1.4 Identify the safety and environmental requirements for relevant materials and processes. |
| 2. Identify production targets. | 2.1 Identify production targets for work area and work roles taking account of OHS requirements
2.2 Identify techniques used to measure production performance against targets/standards. |
| 3. Recognise key areas effecting production efficiencies. | 3.1 Explain importance of reducing wastage of resources
3.2 Identify potential sources of wastage/production inefficiencies
3.3 Outline possible approaches to minimise wastage/inefficiencies
3.4 Demonstrate effective techniques to ensure wastage/production minimisation. |
| 4. Implement actions to achieve production targets. | 4.1 Identify the role of the individual and the team in achieving production targets
4.2 Participate in a team to achieve production targets
4.3 Maintain effectiveness if/when changes to processes occur in order to achieve targets. |

PMASUP200B Implement production efficiencies

- 5. Participate in a team/group to analyse an improvement proposal.
 - 5.1 Explain enterprise procedures for identifying and suggesting improvements
 - 5.2 Explain the use of information in developing improvements
 - 5.3 Analyse problem
 - 5.4 Suggest options for causes of problem
 - 5.5 Suggest options for improvement
 - 5.6 Discuss a proposed improvement with others in a team.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency unit applies to a wide range of processes and equipment. In large plants with multiple processes, it may apply to more than one process if those processes interact with each other. It applies to all operators across all functions.

Sources of information may include:

- yearly, monthly, weekly and daily production targets
- business objectives and goals
- control charts, runcharts and graphs
- enterprise manuals and procedures
- equipment specifications.

Sources of process inefficiencies and wastage may include:

- equipment downtime
- spillages
- leaks
- contamination
- raw material quality
- utilities usage
- productivity issues
- incorrect work allocation/priorities/planning
- incorrect processes/procedures.

Typical problems include:

- non-routine process and quality problems
- equipment selection, availability and failure
- teamwork and work allocation problems
- safety and emergency situations and incidents.

All operations are performed in accordance with procedures.

All operations are subject to stringent OHS requirements and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency (eg, elements 3 & 5). Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Evidence of satisfactory performance in this unit can be obtained by observation of performance and questioning to indicate understanding and knowledge of the elements of the competency and performance criteria.

Consistent performance should be demonstrated. In addition, look to see that:

- hazards are identified and controlled
- production targets and measures are identified
- wastage and production inefficiencies for the functional area are identified
- work is conducted in a manner to minimise wastage/inefficiencies
- enterprise procedures for identifying and suggesting improvements are followed
- effective participation in process improvement teams/activities is demonstrated.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications	Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.
Other assessment advice	In all plants it may be appropriate to assess this unit concurrently with relevant teamwork or operation units.
Essential knowledge	<p>Competence includes a thorough knowledge and understanding of the process, normal operating parameters and product quality to recognise non-standard situations.</p> <p>Competence includes the ability to apply and explain, sufficient for the identification and implementation of strategies to maximise production efficiencies:</p> <ul style="list-style-type: none">• relevant equipment and operational processes• hazards associated with the process• application of the hierarchy of control in controlling the hazards• the safety implications of improving efficiencies• enterprise policies and procedures• enterprise goals, targets and measures• enterprise OHS, quality, and environmental requirements• individual and team roles and responsibilities in achieving safety, quality and environmental targets• principles of decision making strategies and techniques• enterprise information systems and data collation• industry codes and standards.
Prerequisites	<p>This unit has the prerequisites of:</p> <p>PMASUP100A Apply workplace procedures</p> <p>PMASUP110A Relay and respond to information</p> <p>PMAOPS101A Read dials and indicators OR</p> <p>PMAPROC101B Make measurements.</p>

PMASUP210A

Unit Descriptor

Process and record information

This unit of competency covers the provision and processing of all relevant information by responding to the information requirements of the plant including the completion of all workplace documents and clearly and concisely providing relevant information to others.

The plant technician would:

complete appropriate plant documentation

provide appropriate workplace and technical information within their area of expertise

identify routine information requirements seeking clarification where necessary.

Prerequisite Unit(s)

PMASUP110A Relay and respond to information

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Access information. | 1.1 Identify the need for information
1.2 Request appropriate information
1.3 Access information in accordance with procedures
1.4 Comply with security procedures in accessing appropriate information. |
| 2. Provide appropriate information. | 2.1 Deal with enquiries promptly and courteously
2.2 Establish details of enquiry by questioning and summarising
2.3 Provide appropriate information relevant to enquirer's request
2.4 Organise information clearly, concisely and logically
2.5 Provide information in a form that is readily understood by others
2.6 Provide information in a timely manner
2.7 Redirect enquiries to relevant personnel for resolution where outside the operator's area of responsibility. |
| 3. Give and follow routine instructions. | 3.1 Give accurate, clear and concise instructions that are consistent with the skills of the receiver
3.2 Ensure that interaction with others is efficient, effective, responsive, courteous and supportive
3.3 Confirm that instructions are understood
3.4 Follow prescribed and routine work related sequences. |
| 4. Provide written and oral reports. | 4.1 Complete handovers providing all appropriate information for the next shift
4.2 Reaffirm handover information by completing status checks
4.3 Complete all workplace documents clearly and accurately in accordance with procedures
4.4 Report all relevant information clearly and concisely. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

The competency unit applies to a wide range of information sources and documentation.

This competency includes the following indicative plant documentation :

- operating procedures
- work instructions
- incident procedures
- operating manuals
- quality procedures
- training program contents/materials
- safety data sheets
- job cards
- maintenance logs
- non compliance reports
- incidence and accident reports
- permits
- schematics/process flows/engineering drawings.

This competency includes items of equipment such as:

- telephone
- two way radio
- computer equipment.

Information may be provided:

- orally
- in writing
- one on one
- as part of a group discussion.

All operations are performed in accordance with standard operating procedures.

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be appropriate assessment for this unit of competency. Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to provide and assess all required information and that the information provided both verbally and in writing is completed in a clear and concise manner, that is easily understood by others and in accordance with workplace requirements.

Evidence of satisfactory performance in this unit can be obtained by observation of performance and questioning to indicate understanding and knowledge of the elements of the competency and performance criteria.

Consistent performance should be demonstrated. In particular look to see that:

- reports and records are completed accurately, concisely and in accordance with procedures
- all information is provided in an efficient, effective, courteous and timely manner
- completion of shift handover, log books and company production records conveys all relevant information
- information sharing demonstrates effective communication processes such as turn-taking, participating in discussions and tolerating views of others in a way that contributes to the overall discussion
- notes of discussion are prepared so that they can be clearly interpreted by the receiver
- communication distinguishes between relevant and peripheral issues.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

Essential knowledge

Competence to include the ability to apply and explain:

- importance of workplace documentation in relation to job role
- enterprise operational, quality and safety policies and procedures
- workplace codes such as numbers, symbols, signs, colour and other codes.

Prerequisites

This unit **has** the prerequisites of:

PMASUP110A Relay and respond to information.

PMASUP220A

Unit Descriptor

Monitor and control environmental hazards

This competency covers recognising and controlling environmental hazards and incidents. This competency does NOT include the control of significant incidents which are either part of emergency response competencies and/or the role of management personnel.

It is performed by operators who may be expected to control minor environmental incidents or to initiate the control of more significant environmental incidents. In particular it covers:

- identifying environmental hazards and assessing their potential impact
- measuring, monitoring, controlling and reporting environmental hazards in accordance with standard procedures
- cooperating with internal and external regulatory bodies
- participating in investigations of environmental incidents.

At this level an operator, after identifying an environmental hazard, would assess its potential impact and determine its cause. Typically the operator would initiate a response which could include:

- activating relevant alarms
- controlling the hazard in accordance with standard procedures
- measuring or monitoring the hazard in accordance with standard procedures
- documenting and reporting the incident.

As well, the operator would cooperate with internal or external regulatory bodies by supplying information about an incident, or communicating on an ongoing basis with appropriate personnel. The operator would also participate in investigations of the incident, which could include making written or verbal reports.

Prerequisite Unit(s)

PMASUP120A Follow environmental work practices

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|-------------------------------------|--|
| 1. Identify environmental hazards. | 1.1 Identify environmental hazards
1.2 Assess location, severity and potential effect of hazard and communicate to appropriate personnel
1.3 Determine cause/source of environmental hazard. |
| 2. Respond to environmental hazard. | 2.1 Activate environmental alarms where appropriate
2.2 Control environmental hazard in accordance with standard procedures
2.3 Measure and monitor hazard in accordance with standard procedures
2.4 Document and report a hazardous incident. |

- 3. Cooperate with internal and external bodies.
 - 3.1 Identify relevant licensing authorities/bodies
 - 3.2 Respond to requests for information in accordance with standard procedures
 - 3.3 Monitor status of the environmental hazard and communicate with appropriate personnel on an ongoing basis.

- 4. Participate in investigation of environmental incident.
 - 4.1 Complete incident reports in accordance with standard procedures
 - 4.2 Undertake investigations in accordance with standard procedures
 - 4.3 Document and report findings in accordance with standard procedures.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	-
Solving problems	2
Using technology	1

RANGE STATEMENT

This competency is performed by operators who may be expected to control minor environmental incidents, initiate the control of more significant environmental incidents, cooperate with regulatory authorities and participate in the investigation (internal or external) of environmental incidents within the limits provided by enterprise policy and standard procedures.

Indicative functions include:

- monitoring (using physical senses or instrumentation)
- complying with licensing arrangements
- controlling incidents (initial response for all incidents, controlling minor incidents)
- cooperating with appropriate bodies (internal or external).

Typical problems will include the application of plant and process knowledge to identify environmental hazards and initiate an appropriate response. This includes losses of containment and other sources of environmental incidents where the incident is small enough to be handled by the operator, or for larger/more significant incidents, this includes the cooperation of the operator with the person controlling the incident/incident investigation.

All operations are performed in accordance with standard procedures and policies.

The identification and control of hazards and the application of OHS is to be in accordance with current, applicable legislation and regulations and company procedures. All work is carried out at all times in accordance with these requirements.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action. The emphasis should be on the ability to stay out of trouble rather than on recovery from a disaster.

Consistent performance should be demonstrated. In particular look to see that:

- hazards or potential hazards are identified, assessed and their cause determined
- response to environmental hazards is in accordance with standard procedures, which could include measuring, monitoring and implementing hazard control procedures
- relevant licensing authorities/bodies are identified and cooperation/participation related to an incident is provided in accordance with standard procedures.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications	Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.
Other assessment advice	<p>In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.</p> <p>In a major hazard facility, it may be appropriate to assess this unit concurrently with:</p> <ul style="list-style-type: none">• PMAOHS100A Follow OHS procedures.
Essential knowledge	<p>Competence to include the ability to describe nature and severity of environmental hazards caused by potential incidents including:</p> <ul style="list-style-type: none">• the level of environmental threat posed by potential incidents• sensitivity of local environment to such environmental threats and• pathways of pollution from the plant to the environment. <p>Competence also includes the ability to apply and explain:</p> <ul style="list-style-type: none">• regulatory requirements such as environmental protection regulations, OHS, HAZCHEM, duty of care and dangerous goods requirements• external licensing requirements such as EPA, water authorities, local councils• enterprise procedures.
Prerequisites	<p>This unit has the prerequisites of:</p> <p>PMASUP120A Follow environmental work practices.</p>

PMASUP300B

Identify and implement opportunities to maximise production efficiencies

Unit Descriptor

This competency covers the ability to identify, monitor and participate in strategies to improve production efficiencies to meet set targets. It applies to all employees who are required to provide input into process improvement initiatives. The competency is typically performed by an experienced technician, team leader or supervisor.

This unit does not cover maximisation of process/equipment efficiencies undertaken as part of the technician's normal role, which is covered in the relevant OPS competency unit.

The plant technician would:

identify variances from production targets

monitor performance against targets

participate in and implement areas for improving process efficiencies.

Generally the plant technician would be part of a team in developing strategies to improve process efficiencies and may be expected to perform all parts of this unit. At all times they would be liaising and cooperating with other members of the team.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Identify production performance. | 1.1 Identify production targets for work area and work roles taking account of OHS
1.2 Identify techniques used to measure production performance against targets/standards
1.3 Record production performance in accordance with enterprise procedures. |
| 2. Recognise issues that effect production process efficiencies. | 2.1 Identify issues affecting output and quality
2.2 Identify potential/actual sources of wastage
2.3 Identify hazards and required controls associated with the process
2.4 Identify strategies to minimise production inefficiencies without sacrificing OHS. |
| 3. Monitor and measure performance against targets. | 3.1 Monitor performance of process/equipment/raw material usage against targets
3.2 Identify variations from targets and divergence from trends
3.3 Use appropriate techniques to monitor actual performance against targets
3.4 Identify factors inhibiting performance. |

PMASUP300B Identify and implement opportunities to maximise production efficiencies

- 4. Participate in developing methods for improving process efficiencies.
 - 4.1 Analyse problems/areas for improvement in process efficiencies
 - 4.2 Utilise appropriate problem solving tools and techniques for identifying areas for improvement Identify and take into account external factors
 - 4.3 Identify required changes to process, standards and procedures
 - 4.4 Recommend strategies for improvement to relevant personnel.

- 5. Participate in implementing process improvement strategies.
 - 5.1 Implement developed strategies to minimise production inefficiencies and wastage
 - 5.2 Monitor performance improvement recommendations
 - 5.3 Evaluate results of improvements
 - 5.4 Report results to relevant personnel.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	1
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

The competency unit applies to a wide range of processes and equipment. In large plants with multiple processes, it may apply to more than one process if those processes interact with each other. It applies to all operators across all functions.

Sources of information may include:

- yearly, monthly, weekly and daily production targets
- business objectives and goals
- control charts, runcharts and graphs
- enterprise manuals and procedures
- equipment specifications.

Sources of process inefficiencies and wastage may include:

- equipment downtime
- spillages
- leaks
- contamination
- raw material quality
- utilities usage
- productivity issues
- incorrect work allocation/priorities/planning
- incorrect processes/procedures.

Typical problems include:

- non-routine process and quality problems
- equipment selection, availability and failure
- teamwork and work allocation problems
- safety and emergency situations and incidents.

Required hazard controls should be identified in accordance with the hierarchy of control

All operations are performed in accordance with procedures.

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency (eg, elements 2 & 3). Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Evidence of satisfactory performance in this unit can be obtained by observation of performance and questioning to indicate understanding and knowledge of the elements of the competency and performance criteria.

Consistent performance should be demonstrated. In addition, look to see that:

- production targets are identified and performance monitored against targets
- potential and actual issues/problems/hazards are recognised and clarified
- appropriate strategies are recommended to improve efficiency and productivity within team/department to achieve targets
- safety and environmental implications of recommendations are recognised and addressed
- participation in implementing strategies to improve process efficiencies is demonstrated.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications	Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.
Other assessment advice	In all plants it may be appropriate to assess this unit concurrently with relevant teamwork, operation or support units such as <ul style="list-style-type: none">• PMASUP390 Use structured problem solving tools.
Essential knowledge	Competence includes a thorough knowledge and understanding of the process, normal operating parameters and product quality to recognise non-standard situations. Competence to include the ability to apply and explain, sufficient for the implementation of strategies to maximise production efficiencies: <ul style="list-style-type: none">• relevant equipment and operational processes• hazards associated with the process• application of the hierarchy of control in controlling the hazards• enterprise policies and procedures• enterprise goals, targets and measures• enterprise quality, OHS and environmental requirements• obligations of employers under OHS legislation as applied to the production process• enterprise information systems and data collation• industry codes and standards.
Prerequisites	This unit has the prerequisite of: PMASUP200A Implement production efficiencies

PMASUP320A

Implement and monitor environmental policies

Unit Descriptor

On completion of this unit, the worker will be able to implement and monitor environmental policies and procedures.

Prerequisite Unit(s)

PMASUP220A Monitor and control environmental hazards

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Provide information to the work team. | <ul style="list-style-type: none"> 1.1 Provide information on environmental systems and <u>procedures</u> and other <u>risk</u> areas within the area of management responsibility 1.2 Make information readily accessible by all members in the work team 1.3 Explain information provided to the work team in a clear and concise manner 1.4 Convey organisation's activities/performance in regard to environmental management and <u>business sustainability</u> 1.5 Explain links between environmental, financial, safety and other <u>risk</u> areas and how these are integrated in organisational policies and practices. |
| 2. Implement and monitor operational procedures. | <ul style="list-style-type: none"> 2.1 Identify and assess existing and potential environmental <u>risks</u> and impacts 2.2 Seek expert advice as required 2.3 Carry out prioritised recommendations from the assessments as part of organisation's operational <u>procedures</u> 2.4 Implement organisational environmental <u>risk</u> and impact policies and <u>procedures</u> 2.5 Allocate tasks and monitor outcomes in accordance with organisational policies and targets 2.6 Implement contingency plan promptly when incidents occur. |
| 3. Implement and monitor changes and continuous improvement. | <ul style="list-style-type: none"> 3.1 Implement environmental improvement plans for own work group and integrate plans with other operational activities 3.2 Identify, implement and monitor best practice approaches to improving <u>environmental performance</u> so as to reduce environmental <u>risk</u>, consumption of resources and waste 3.3 Seek suggestions and ideas about environmental management from the work team and act upon suggestions where appropriate 3.4 Seek suggestions from supply chain, at tender/contract stage, for ways of improving <u>environmental performance</u> and incorporate in specification where appropriate. |

PMASUP320A Implement and monitor environmental policies

- 4. Implement and monitor recording procedures.
 - 4.1 Identify and implement internal and external reporting procedures
 - 4.2 Maintain environmental records accurately and legibly
 - 4.3 Store records securely in a form accessible for reporting purpose
 - 4.4 Monitor information/records to identify trends that may require remedial action
 - 4.5 Use information to promote continuous improvement of environmental performance.

- 5. Implement and monitor an environmental management training program.
 - 5.1 Identify environmental training needs accurately by specifying gaps between environmental competencies required and those held by group members
 - 5.2 Make arrangements to fulfill identified training needs for the work group with relevant parties.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	2
Using mathematical ideas and techniques	2
Solving problems	2
Using technology	2

RANGE STATEMENT

This competency covers process manufacturing plants which may involve workplace hazards such as:

- chemicals and hazardous materials
- gases and liquids under pressure
- materials handling.

This competency unit includes:

- legislation, codes and national standards relevant to the workplace which may include:
 - award and enterprise agreements and relevant industrial instruments
 - relevant legislation from all levels of government that effects business operation, especially in regard to OHS, environmental issues and industrial relations
 - relevant industry codes of practice
- awareness of the environment and the effects on the environment of the organisation's:
 - liquid waste
 - solid waste
 - gas/fume/vapour/smoke emissions, including fugitive emissions
 - hazardous materials
 - excessive energy and water use
 - excessive noise

and the workplace practices that can be used to minimise or prevent these effects.

Information may include:

- organisational policies and procedures
- relevant environmental legislation requirements
- voluntary environmental agreements entered into with external organisations/authorities
- continuous improvement policies and processes for the organisation.

Work team may include:

- formal or unstructured groups
- two or more people.

Environmental performance may include:

- resource efficiency (including materials, water and energy)
- minimisation of waste of materials, water and energy
- application of the waste hierarchy (avoid, reduce, reuse, recycle)
- reduction in use of non-renewable resources
- effective management of all environmental incidents.

Some approaches to improving environmental performance may include:

- preventing and minimising the production of pollution (eg, discharges to air, land and water, hazardous waste)
- improving housekeeping (eg, using a broom instead of a hose, using old rags for cleaning instead of toxic cleaners or water)
- substituting materials (eg, replacing toxic solvent based coatings with water based ones)
- changing processes (eg, mechanical cleaning, re-design of products/ procedures so that materials are used more efficiently)
- effective waste collection system allowing the separation of reusable, recyclable, hazardous and scheduled waste.

Environmental management policies must be appropriate to the scope and scale of the enterprise and may include:

- environmental load reduction and waste minimisation
- tenders for the provision of goods and services that specify environmentally preferred selection criteria
- protection of land and habitat
- environmentally sustainable work practices.

Supply chain may include:

- suppliers
- contractors
- others acting on enterprise's behalf.

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or Federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to apply plant and process knowledge to identify and analyse environmental hazards and initiate an appropriate response. It is important that critical procedures are known.

Consistent performance should be demonstrated. In particular look to see that:

- work teams are kept informed of environmental and other risk areas
- training needs are addressed
- records are kept.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and extreme situations that may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities (eg, HAZOP) and similar sources.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.

In a major hazard facility, it may be appropriate to assess this unit concurrently with:

- PMAOHS300 Implement and monitor OHS policies and procedures
- PMAOHS310 Investigate incidents.

Essential knowledge

Knowledge and understanding of the control of environmental incident process and the importance of critical parameters enough to implement and monitor environmental management policies and procedures within an organisation.

Competence includes the ability to:

- apply and describe:
 - supply chain procedures
 - relevant legislation from all levels of government that effects business operation, especially in regard to OHS and environmental issues
- apply and explain:
 - relevant knowledge of environmental issues especially in regard to water catchments, air, noise, ecosystem, habitat, waste minimisation, resource consumption and greenhouse impacts relevant to own work area
 - relevant environmental systems and procedures
 - the relationship between resource efficiency, waste minimisation and the economic efficiency of the enterprise
- show underpinning skills of:
 - communication/consultation skills to ensure information is supplied to the work team
 - technology skills including the ability to operate and shut down equipment
 - ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities.

Prerequisites

This unit **has** the prerequisite of:

PMASUP220A Monitor and control environmental hazards.

PMASUP330B

Schedule production

Unit Descriptor

This unit refers to the scheduling of production to meet operational requirements. It aims at ensuring that operators identify resource requirements, and document, monitor and adjust schedules in response to operational variations.

Typically, work would include the authorising, planning, scheduling and prioritising of day to day activities in order to optimise plant production and costs of production, using daily and weekly run plan guidelines/production schedules.

Prerequisite Unit(s)

PMASUP210A Process and record information

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Identify resources to meet production requirements. | 1.1 Determine demand for product
1.2 Access and verify information on orders, stocks and delivery
1.3 Determine material requirements
1.4 Determine human resource requirements
1.5 Determine safety issues in meeting requirements. |
| 2. Document schedules. | 2.1 Determine production priorities
2.2 Identify production opportunities ('windows')
2.3 Develop production schedules in accordance with procedures taking account of safety requirements
2.4 Communicate and distribute production schedules to appropriate personnel. |
| 3. Monitor production schedules. | 3.1 Monitor production output against schedule
3.2 Identify variations between production and schedule
3.3 Record operational variation and discuss with appropriate personnel
3.4 Identify possible cause of variation. |
| 4. Adjust schedules. | 4.1 Adjust schedules in response to operational variation
4.2 Adjust schedules in response to unexpected events
4.3 Adjust/amend document schedules and distribute to appropriate personnel
4.4 Maintain product output in accordance with production and safety requirements. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	2
Solving problems	2
Using technology	1

RANGE STATEMENT

This competency is typically performed by an experienced operator, team leader or supervisor.

Indicative functions include:

- regular planning operations
- communication with
 - all relevant personnel
 - management and administration.

Unit content areas include responses to:

- immediate production needs
- future production needs
- reworking requirements.

Indicative information sources and resources include:

- customer requirements
- organisational plans, policies and procedures
- production schedules, run plans
- resource utilisation actuals and targets.

All operations are performed in accordance with standard operating procedures.

All operations are subject to stringent health, safety and environment requirements, which may be imposed through State or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the scheduler needs to ensure the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency (eg, elements 1 and 4). Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to identify resource requirements, and document, monitor and adjust schedules in response to operational requirements.

Consistent performance should be demonstrated. In particular look to see that:

- resource requirements are correctly identified in accordance with production requirements
- schedules are planned for the most effective and efficient manner to meet operational requirements
- schedules allow for safety issues and reinforce safety priorities
- timelines are adhered to
- schedules are adjusted and resource requirements amended in response to operational variations
- variations to schedules are communicated and documented appropriately.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications	Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.
Other assessment advice	In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.
Essential knowledge	<p>Competence to include the ability to apply and explain:</p> <ul style="list-style-type: none">• production objectives, priorities, targets and resource requirements• customer and quality requirements• process and plant operational requirements• hazards associated with the process• awareness of the hierarchy of control in controlling the hazards• impact of adjustments on process/plant efficiencies and production outcomes/targets• safety implications for schedule/schedule changes• planning, sequencing, monitoring and reviewing steps• company policies and procedures <p>as is relevant to scheduling of production to meet operational requirements.</p>
Prerequisites	<p>This unit has the prerequisites of:</p> <p>PMASUP130A Follow established work plan</p> <p>PMASUP210A Process and record information.</p>

PMASUP390A
Unit Descriptor

Use structured problem solving tools

This competency covers the solving of process and other problems, beyond those associated directly with the process unit, using structured process improvement tools to identify improvements and/or solve problems. The competency is typically performed by an experienced technician, team leader or supervisor.

This unit does not cover the solving of problems undertaken as part of the technician's normal role which is covered in the relevant operation competency unit.

The plant technician would:

use a range of formal problem solving techniques

identify and clarify the nature of the problem

devise the best solution

evaluate the solution

develop an implementation plan to rectify the problem.

Generally the plant technician would be part of a team during the solving of complex or systemic problems and would be expected to perform all parts of this unit. At all times they would be liaising and cooperating with other members of the team.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Identify the problem. | 1.1 Identify variances from normal operating parameters and product quality
1.2 Define the extent, cause and nature of the problem by observation and investigation
1.3 State and specify the problem clearly. |
| 2. Determine fundamental cause of problem. | 2.1 Identify possible causes based on experience and the use of problem solving tools/analytical techniques
2.2 Develop possible cause statements
2.3 Identify fundamental cause. |
| 3. Determine corrective action. | 3.1 Consider all possible options for resolution of the problem
3.2 Consider strengths and weaknesses of possible options
3.3 Determine corrective action to remove the problem and possible future causes
3.4 Develop implementation plans identifying measurable objectives, resource needs and timelines in accordance with safety and operating procedures
3.5 Develop recommendations for ongoing monitoring and testing. |
| 4. Communicate recommendations. | 4.1 Prepare report on recommendations
4.2 Present recommendations to appropriate personnel
4.3 Follow up recommendations if required. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	1
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	2
Using technology	2

RANGE STATEMENT

The competency unit applies to a wide range of processes and equipment. Each OPS competency unit includes a problem solving element where problems specific to that competency unit are to be resolved. This competency unit is where structured problem solving techniques are to be applied more broadly, or with greater depth/rigour than is implied by the problem solving element of the OPS units.

In large plants with multiple processes, it may apply to more than one process if those processes interact with each other. It applies to all operators across all functions.

This competency unit may include the use of analytical techniques in problem solving such as:

- brainstorming
- fishbone diagrams/cause and effect diagrams
- process logic/process requirements
- logic tree
- similarity/difference analysis
- Pareto analysis
- force field/SWOT analysis
- flow charts
- control charts, runcharts and graphs
- scattergrams.

Action plans to solve problems are prepared including:

- priority requirements
- measurable objectives
- resource requirements
- methods for reaching objectives
- timelines
- coordination and feedback requirements
- safety requirements
- risk assessment
- environmental requirements.

Typical problems include:

- non- routine process and quality problems
- equipment selection, availability and failure
- teamwork and work allocation problems
- safety and emergency situations and incidents.

All operations are performed in accordance with procedures.

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency (eg, element 3). Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Evidence of satisfactory performance in this unit can be obtained by observation of performance and questioning to indicate understanding and knowledge of the elements of the competency and performance criteria.

Consistent performance should be demonstrated. In addition, look to see that:

- problems are recognised and clarified
- possible causes are identified based on experience and use of analytical techniques in solving the problem, including identifying variations and cause and effect, separating single problems from multiple problems, and the recognition of recurring problems
- fundamental cause of process or equipment faults is determined
- corrective/preventative implementation plans are developed to avoid recurrence of the problem
- implementation plan is presented to relevant personnel.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork or operation units.

In a major hazard facility, it may be appropriate to assess this unit concurrently with:

- PMAOHS200 Participate in workplace safety procedures.

Essential knowledge

Competence includes a thorough knowledge and understanding of the process, normal operating parameters, and product quality to recognise non-standard situations.

Competence to include the ability to apply and explain, sufficient for the identification of the fundamental cause, determining the corrective action and provision of recommendations:

- relevant equipment and operational processes
- enterprise policies and procedures
- enterprise goals, targets and measures
- enterprise quality, OHS and environmental requirements
- principles of decision making strategies and techniques
- enterprise information systems and data collation
- industry codes and standards.

Prerequisites

This unit has no prerequisites.

PMASUP420A

Unit Descriptor

Minimise environmental impact of process

This competency covers minimising waste and environmental threats from a plant and/or a process. It covers all resources used and products made by the plant, and is performed by more experienced operators who might be expected to develop and implement improvements to processes within the plant. This unit may be performed individually or as part of a team.

This competency also applies to capital projects, as well as improvements brought about by changes in work practices and procedures. In this competency, an operator would develop practices or procedures for:

conserving resources

minimising pollution

minimising waste.

This requires the operator to have a good understanding of the resources used by the plant, the nature and source of pollutants and the waste materials produced by the plant. It also requires the operator to understand the impact of using resources, and the effect pollutants and waste can have on the local environment.

When developing a process or practice, the operator would identify which resource, pollutant or waste product that if reduced would give the most benefit. After developing procedures to conserve resources or minimise pollution/waste produced by the plant, the operator would then document the procedures to implement the changes.

Prerequisite Unit(s)

PMASUP120A Follow environmental work practices

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Develop resource conservation practices and/or procedures. | 1.1 Identify the nature of resources used in the plant/process
1.2 Determine the primary source of these resources
1.3 Describe the impact of the depletion of these resources on the environment and society
1.4 Determine which resource(s) will yield a greater benefit from their conservation
1.5 Develop methods to reduce the consumption of these resources
1.6 Complete required documentation to implement change. |
| 2. Develop pollution minimisation practices and/or procedures. | 2.1 Identify the nature of pollutants produced by the plant/process
2.2 Determine the source(s) of these pollutants within the plant/process
2.3 Describe the impact of these pollutants on the environment and society
2.4 Determine which pollutant(s) will yield a greater benefit from their reduction
2.5 Develop methods to reduce the production of this pollutant
2.6 Complete required documentation to implement change. |

- 3. Develop waste minimisation practices and/or procedures.
 - 3.1 Identify the nature of wastes produced by the plant/process
 - 3.2 Determine the source(s) of these wastes within the plant/process
 - 3.3 Describe the impact of these wastes on the environment and society
 - 3.4 Determine which waste(s) will yield a greater benefit from their reduction
 - 3.5 Develop methods to reduce the production of this waste
 - 3.6 Complete required documentation to implement change.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	2
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	3
Using technology	2

RANGE STATEMENT

This competency is performed by more experienced operators and may be performed individually or as part of a team. It includes the following indicative functions:

- examining plant records
- examining operating procedures and practices
- liaising with a range of internal people
- modifying/updating standard operating procedures to 'lock in' any changes.

Typical objectives will include:

- minimisation of waste
- maximisation of product yield from raw materials
- reduction in volume of pollutants made
- reduction in concentration/intensity of pollutants made
- reduction in emissions.

All operations are performed in accordance with standard procedures and policies.

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or Federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Assessment of this unit may be best achieved with a suitable project. This will minimise possible impact on the environment caused by the process or some aspect of the process. Such a project may be regarded as adequate provided it meets all the performance criteria of at least one element. It is not necessary to cover all elements.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action. The emphasis should be on the ability to stay out of trouble rather than on recovery from a disaster.

Consistent performance should be demonstrated. In particular look to see that:

- procedures are developed to reduce the consumption of resources, or to minimise pollution and/or waste products
- appropriate documentation is completed to implement changes
- the greatest yield is achieved by appropriate selection of type of resource usage, type of pollutant or waste product.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units. Consider co-assessment with:

- Competency units relevant to the type of process equipment.

In a major hazard facility, it may be appropriate to assess this unit concurrently with:

- PMAOHS100A Follow OHS procedures.

Essential knowledge

Competence to include the ability to explain:

- nature and severity of potential environmental hazards caused by the plant/process
- sensitivity of local environment to these environmental threats
- pathways of entry to the environment from the plant
- regulatory requirements such as environment protection regulations, OHS, HAZCHEM, duty of care, dangerous goods
- external licensing requirements such as EPA, water authorities, local councils
- enterprise procedures and practices.

Prerequisites

This unit **has** the prerequisites of:

- PMASUP120A Follow environmental work practices.

PMASUP520A

Review procedures to minimise environmental impact of process

Unit Descriptor

This competency covers the minimisation of waste and environmental threat by a plant and/or a process. It covers all resources used and products made.

Prerequisite Unit(s)

PMASUP320A Implement and monitor environmental policies

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|--|
| 1. Establish procedures for environmental management. | 1.1 Establish workplace <u>procedures</u> of proactive environmental management which include resource conservation, pollution and waste minimisation
1.2 Determine primary source of respective aspects
1.3 Describe the negative impact of these aspects on the environment and the society if they are mismanaged
1.4 Prioritise management options according to the greatest benefit to environment and the society
1.5 Develop management <u>procedures</u>
1.6 Complete required documentation of implement change. |
| 2. Review procedures for environmental management. | 2.1 Review the <u>procedures</u> on a regular basis by consulting various work groups for feedback.
2.2 Incorporate relevant feedback into the revised <u>procedures</u> in consultation with the relevant personnel
2.3 Inform relevant work groups of any changes and implement changes in the <u>procedures</u> . |
| 3. Implement and review an environmental management training program. | 3.1 Understand the workplace environmental management training program
3.2 Review the program on a regular basis by consulting various work groups for feedback
3.3 Incorporate relevant feedback into the revised program in consultation with the relevant personnel
3.4 Inform relevant work groups of any changes and implement changes in the training program. |
| 4. Implement and review environmental management recording system. | 4.1 Understand the workplace environmental management recording system.
4.2 Review the system on a regular basis by consulting various work groups for feedback.
4.3 Incorporate relevant feedback into the revised system in consultation with the relevant personnel
4.4 Inform relevant work groups of any changes and implement changes in the management of environmental records. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	3
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	3
Using mathematical ideas and techniques	3
Solving problems	3
Using technology	3

RANGE STATEMENT

This competency covers process manufacturing plants which may involve workplace hazards such as:

- chemicals and hazardous materials
- gases and liquids under pressure
- materials handling.

This competency unit includes:

- legislation, codes and national standards relevant to the workplace which may include:
- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that effects business operation, especially in regard to OHS, environmental issues and industrial relations
- relevant industry codes of practice
- awareness of the environment and the effects on the environment of the organisation's:
- liquid waste
- solid waste
- gas/fume/vapour/smoke emissions, including fugitive emissions
- hazardous materials
- excessive energy and water use
- excessive noise
 - and the workplace practices that can be used to minimise or prevent these effects.

Information may include:

- organisational policies and procedures
- relevant environmental legislation/regulation requirements
- licence conditions
- environmental treaties, conventions and national policies and strategies
- National Pollutant Inventory
- State of the Environment reports
- voluntary environmental agreements entered into with external organisations/authorities
- continuous improvement policies and processes for the organisation.

Work group may include:

- formal or unstructured groups
- two or more people.

Proactive environmental management may include:

- resource conservation and efficiency
- minimisation of waste
- recycling

- reduction in use of non-renewable resources
- maximisation of product yield from raw materials
- reduction in volume of pollutants made
- reduction in concentration/intensity of pollutants made
- reduction in emissions.

Some approaches to proactive environmental management may include:

- preventing and minimising the production of pollution (eg, discharges to air, land and water, hazardous waste)
- improving housekeeping (eg, using a broom instead of a hose, using old rags for cleaning instead of toxic cleaners or water)
- substituting materials (eg, replacing toxic solvent based coatings with water based ones)
- changing processes (eg, mechanical cleaning, re-design of products/ procedures so that materials are used more efficiently).

Environmental management policies must be appropriate to the scope and scale of the enterprise and may include:

- environmental load reduction and waste minimisation
- tenders for the provision of goods and services that specify environmentally preferred selection criteria
- protection of land and habitat
- environmentally sustainable work practices.

Typical functions may include:

- examining plant records
- examining operating procedures and practices
- liaising with a range of internal people
- modifying/updating standard operating procedures to 'lock in' any changes.

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or Federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to apply plant and process knowledge to identify and analyse environmental hazards, and establish and review procedures for environmental management.

Consistent performance should be demonstrated. In particular look to see that:

- a holistic, 'clean production' approach to waste minimisation is taken
- potential effects on the environment are understood
- terms initiated are followed through until final resolution has occurred
- the process/plant is understood and proposals are capable of implementation
- training needs are addressed
- records are kept.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and extreme situations that may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities (eg, HAZOP) and similar sources.

Resource implications	Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.
Other assessment advice	<p>In all plants it may be appropriate to assess this unit concurrently with relevant teamwork units, communication units and units relevant to the process equipment.</p> <p>In a major hazard facility, it may be appropriate to assess this unit concurrently with:</p> <ul style="list-style-type: none">• PMAOHS400 Contribute to workplace OHS management system• PMAOHS401 Assess risk.
Essential knowledge	<p>Knowledge and understanding of the control of environmental incident process and the importance of critical parameters enough to establish and review environmental management <u>procedures</u> within an organisation.</p> <p>Competence includes the ability to:</p> <ul style="list-style-type: none">• apply and explain:• nature and severity of potential environmental hazards caused by the plant/process• sensitivity of local environment to these environmental threats• pathways of entry to the environment from the plant• regulatory requirements such as:• environment protection regulations• OHS• HAZCHEM• duty of care• dangerous goods• external licensing requirements such as:• EPA• water authorities• local councils• enterprise <u>procedures</u> and practices.
Prerequisites	<p>This unit has the prerequisite of:</p> <ul style="list-style-type: none">• PMASUP320A Implement and monitor environmental policies.

PMASUP620A

Unit Descriptor

Manage environmental management system

This competency covers the scoping, establishment and review of the environmental management system in regard to environmental sustainability as an integral part of business planning.

Prerequisite Unit(s)

PMASUP520A Review procedures to minimise environmental impact of process

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|---|
| 1. Establish an environmental management system. | <ul style="list-style-type: none"> 1.1 Select an appropriate Environmental Management System as a model for the enterprise/plant 1.2 Develop environmental management policies that reflect the organisation's commitment to environmental sustainability as an integral part of business planning and as a business opportunity 1.3 Establish strategies to encourage all stakeholders to meet high standards of <u>environmental performance</u> and support sustainable innovation and continuous improvement 1.4 Establish policies and <u>procedures</u> to incorporate and support <u>triple bottom line principles</u> 1.5 Establish policies/procedures which minimise environmental impacts 1.6 Check policies conform to current regulatory requirements 1.7 Address environmental management at the planning, design and evaluation stages to ensure that any changes in the workplace are identified for ongoing impact and opportunity. |
| 2. Manage innovation and improvement. | <ul style="list-style-type: none"> 2.1 Identify, evaluate and take into consideration changing trends and opportunities relevant to the organisation for ongoing improvement programs 2.2 Promote continuous improvement and sustainable innovation as an essential part of doing business and as a context for assessment and planning of <u>environmental performance</u> 2.3 Establish continuous improvement and innovation policies and <u>procedures</u> that include training and professional development to optimise the <u>environmental performance</u> of the organisation 2.4 Establish a system to analyse and communicate the costs and benefits of innovations and improvements and to measure, monitor and record <u>environmental performance</u> 2.5 Establish performance benchmarks and indicators and set targets to maximise continuous improvement. |
| 3. Review environmental management system. | <ul style="list-style-type: none"> 3.1 Develop processes to ensure that an integrated ongoing review is part of the organisation's policy and <u>procedures</u> 3.2 Promote improvement and sustainable innovation to organisational performance by ongoing evaluation and assessment, and changes to policies. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	3
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	3
Using mathematical ideas and techniques	3
Solving problems	3
Using technology	3

RANGE STATEMENT

The 'Triple Bottom Line' (TBL) principle is used as a framework for measuring and reporting corporate performance against economic, social and environmental parameters. It involves the focus of an enterprise being not just on the economic value they add, but also on the *environmental* and *social* value they can add.

Sustainable development is defined as 'Development which meets the needs of the present without compromising the ability of future generations to meet their own needs.' From a business perspective, sustainable development involves the integration of this objective with the need for business growth and expansion. Effective and innovative environmental management can contribute to business growth by reducing costs, differentiating goods and services and contributing to improved corporate image and staff relations.

Environmental performance may be defined as the measure of an organisation's impact on the environment and their ability to manage and minimise negative impacts.

Legislation, codes and national standards relevant to the workplace which may include

- Relevant Commonwealth and State Environment Acts
- Applicable State environmental regulations
- Licences and permit conditions
- Codes of practice
- Australian standards
- Environmental treaties and conventions
- National environmental policies, strategies and initiatives such as the National Greenhouse Strategy, National Strategy for Ecologically Sustainable Development etc.
- National Pollutant Inventory
- State of the Environment Reports
- Industry Association commitments (eg, The Global Mining Initiative)

Environmental management policies must be:

- relevant to the organisation's operations
- appropriate to the scope and scale of the business.

Environmental management policies may include:

- local, national and international innovations, programs and ideas
- business sustainability
- environmental load reduction
- waste minimisation
- tenders for the provision of goods and services that specify environmentally preferred selection criteria

- protection of land and habitat
- ecological considerations
- regeneration of damaged ecosystems
- media releases as a result of incidents
- environmental reporting
- communication strategies to ensure all stakeholders are informed of initiatives and to promote achievements to the wider community.

Knowledge of legislation, codes, national standards, industry codes of practice and workplace policies and procedures must:

- be strictly relevant to the particular workplace and is not intended to include detailed technical aspects of environmental science
- details of legislation must be directly relevant to the workplace
- be consistent with the concept that people at this level will be dealing with environmental concepts as part of an overall management responsibility and not as an environmental specialist.

Environmental improvement plans may be established at management level and may include:

- measuring, monitoring and recording environmental performance and continually setting targets for measurable improvements
- all aspects of environmental performance including energy and other resources use, waste minimisation, recycling, transport use.

Environmental sustainability may be influenced by:

- the organisational culture and operations
- internal or external economic climate
- political climate
- market focus/considerations
- environmental impacts of the business operation.

Stakeholders may include:

- board members, financial backers, owners
- all members of the organisation, including management and staff members
- suppliers
- contractors
- others acting on the organisation's behalf
- customers
- external individuals or bodies who may have an interest in or may be affected by the organisation.

Maximising opportunities may involve:

- improved environmental performance
- increased efficiency

- use of alternative energy sources

and may improve/enhance:

- corporate image
- staff morale
- cost reduction
- product differentiation/branding
- identification of market potential.

To minimise environmental impact may include the minimisation of:

- waste/pollution
- emissions/spills
- use of resources, especially reduction of use of non-renewable resources.

Continuous improvement and innovation policies may include:

- consistent reviewing activities in search of a better way
- improving the organisation in all aspects of its operation

and may look at life cycle impacts of the organisation including:

- activities and products are designed to minimise life cycle impacts and maximise opportunities
- tendering and purchasing processes that include life cycle criteria
- product design and manufacture
- packaging policies
- product use and disposal
- vehicle policies that include use of cleaner fuels or alternative energy sources and regular servicing intervals to reduce pollution and improve efficiency.

Performance benchmarks and targets may include:

- best practice or industry codes for the industry/sector
- levels of performance expected of organisation sectors and/or the organisation as a whole.

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or Federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

EVIDENCE GUIDE

Assessment context and methods

Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to develop and establish environmental management policies, systems and procedures in regard to managing sustainable business practices while encompassing environmental sustainability as an integral part of business planning.

Evidence must be strictly relevant to the particular management role and is not intended to include detailed technical aspects of environmental science.

Consistent performance should be demonstrated. In particular look to see that:

- communication/consultation skills to ensure all relevant groups and individuals are advised of what is occurring and are provided with an opportunity for input
- conflict resolution skills to mediate, negotiate and/or attempt to obtain consensus between parties
- planning and evaluation skills to develop policies and procedures
- process analysis skills to identify potential environmental impacts and opportunities
- problem solving skills to deal effectively with environmental impacts and opportunities as identified
- ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and extreme situations that may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities (eg, HAZOP) and similar sources.

Resource implications

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork units, communication units and units relevant to the process equipment.

In a major hazard facility, it may be appropriate to assess this unit concurrently with:

- PMAOHS600 Ensure a safe workplace.

Essential knowledge

The person must demonstrate understanding of specialised knowledge with depth in some areas. Required knowledge is to be limited to that which is sufficient to perform the particular management function and is intended to promote environmental awareness rather than technical environmental competencies.

Competence requires the ability to:

- apply and explain:
- relevant legislation from all levels of government that effects business operation, especially in regard to OHS and environmental issues, EEO, industrial relations and anti-discrimination
- concepts of policy development and business planning
- relevant system analysis and design principles
- performance benchmarking and indicator development relevant to the organisation's activities
- environment sustainability as a 'whole system' approach
- techniques to measure sustainability
- quality systems
- supply chain management
- strategies to maximise opportunities
- environment impact minimisation strategies
- relevant knowledge of environmental issues, especially in regard to water catchments, air, noise, ecosystems, habitat, waste minimisation
- relevant knowledge of ecological systems in regard to business operation.

Prerequisites

This unit **has** the prerequisite of:

- PMASUP520A Review procedures to minimise environmental impact of process.

PMBPREP508A

Produce drawings

Unit Descriptor

This unit applies to employees required to produce drawings from models or design concepts. It applies to all sectors of the industry.

This competency is typically performed by technicians working either independently or as part of a work team.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Identify object to be drawn. | 1.1 Identify purpose (and any operational characteristics) of object to be drawn
1.2 Identify production materials and method. |
| 2. Establish design requirements and limitations. | 2.1 Identify type of drawing to be completed
2.2 Identify drawings conventions and specifications to be noted on the drawing
2.3 Select appropriate media for drawings. |
| 3. Determine dimensions and other criteria. | 3.1 Establish and document design concept requirements as appropriate and identify dimensions, angles shapes, finished size
3.2 Measure model, if appropriate, to accurately reflect the dimensions, including length, width, height, depth, thickness and weight
3.3 Check dimensions against design parameters where appropriate. |
| 4. Quantify and draft initial drawing. | 4.1 Plot dimensions from prototype, sketch or model and documented specifications
4.2 Connect dimensional points to match appropriate drawing view
4.3 Note any production or special requirements
4.4 Note drawing conventions and specifications on the documentation. |
| 5. Complete drawing. | 5.1 Check angles, shapes and dimensions against specifications and model
5.2 Adjust the drawing within scope of authority
5.3 Check drawing for compliance with workplace documentation requirements. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	2
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	2
Using mathematical ideas and techniques	3
Solving problems	3
Using technology	3

RANGE STATEMENT

This competency unit includes manual and CAD drawing and the use of drawing and measurement instruments. It does not include the design of the product.

This competency applies to all work environments and sectors within the plastics, rubber and cabling industry. It assumes an understanding of the manufacturing process and the shape requirements of that process. It does not necessarily imply that the person is competent to operate any or all of the process equipment.

Standard procedures means all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards.

The processes covered by this unit include any process making products in the industry where a product drawing is required as part of the design/development process. This refers to formal drawings complying with drawing conventions/standards, not hand sketches.

- drawing tools
- CAD tools
- measuring tools
- design specifications
- prototypes and models.

- matching process requirements (eg, adequate relief) with design concepts (eg, straight sides)
- matching realistic manufacturing tolerances with design ideals.

All operations are performed in accordance with standard procedures and work instructions.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements:

Application of knowledge of the materials, equipment and process sufficient to produce a product drawing which is compatible with process requirements.

Knowledge of the enterprise's procedures and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and work standards.

Competence includes the ability for the practical completion of the job to:

- identify work procedures appropriate for the production of drawings
- interpret specifications and measurements in two and three dimensional form
- accurately measure model dimensions
- present relevant information within the production drawing
- use appropriate workplace language and communication technologies
- locate, interpret and apply relevant information when completing records
- maintain workplace records systems
- plan own work including predicting consequences and identifying improvements
- apply and/or explain:
 - impact of accurate drawings on production workflow and product quality
 - identification and correct use of drawing and measuring equipment.

Critical aspects:

It is essential that the procedures be understood and that the importance of critical dimensions and shapes is known.

Consistent performance should be demonstrated. In particular look to see that drawing standards are met consistently.

Language, literacy and numeracy requirements:

This unit requires the ability to read, interpret and write technical specifications. Numeracy is required to be able to determine sizes, angles and shapes.

Assessment method and context:

Competence in this unit may be assessed:

- over a range of actual projects which are implemented in the workplace
- by use of a range of design assignments which are assessed against typical workplace requirements
- by a combination of these techniques.

In all cases it is expected that practical assessment will be combined with targeted questioning to assess the underpinning knowledge and theoretical assessment will be combined with appropriate practical/simulation or similar assessment.

Resource implications:

This section should be read in conjunction with the range of variables for this unit of competency. Resources required include suitable access to drawing and related equipment. A bank of case studies/scenarios and questions will also be required to the extent that they form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunchroom. No other special resources are required.

Pre-Requisites

This competency has **no** prerequisites.

PMBPROD230B

Monitor process operations

Unit Descriptor

This competency covers the use of production processing equipment.

This competency is typically performed by all operators working either independently or as part of a work team.

Application of the Unit

This competency applies to operators who use production processing equipment. Work involves the removal of products from equipment in strict conformity with standard operating procedures and routine quality inspection processes. The key factors are the successful operation of the equipment and the ability to recognise when the process is not working as intended. It includes:

- checking job sheets for work to be done and identifying the priority in which jobs/product will be made/completed
- discussing work progress with other workers
- following approved hazard minimisation procedures for any hazards connected with materials and process, using work instructions, labels and materials safety data sheets, and in accordance with occupational health and safety legislative responsibilities
- identifying production problems
- collecting and observing products from the production process
- collecting and disposing of waste materials
- checking materials to ensure no contamination
- identifying and taking action on routine process problems.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

1. Identify equipment controls and procedures.

- 1.1 Identify work requirements from workplace approved operating procedures
- 1.2 Check operating procedures and controls to identify approved adjustments and operating parameters
- 1.3 Establish actions to be used in the event of faulty production from operating procedures
- 1.4 Identify procedures for obtaining materials for the process
- 1.5 Identify hazards and environmental issue that might surround the operation.

- 2. Get ready for work/job.
 - 2.1 Assemble ancillary tools and equipment
 - 2.2 Identify inspection procedures
 - 2.3 Identify any finishing activities
 - 2.4 Plan to avoid any hazards connected with materials and process by observation of the equipment, workplace reference materials including materials safety data sheets and equipment instructions
 - 2.5 Take appropriate measures to minimise risks from the identified hazards
 - 2.6 Establish the location and function of equipment emergency stops and ensure guards are in place
 - 2.7 Identify and note requirements for checking materials inputs and outputs
 - 2.8 ancillary supplies and equipment
 - 2.9 product quality requirements for the relevant process stage(s)
 - 2.10 Obtain or arrange access to any required supplementary equipment for product quality testing or routine lubrication and adjustment.

- 3. Maintain operations.
 - 3.1 Check process operations, noting product quality, production outputs and waste, in accordance with workplace practices
 - 3.2 Collect product outputs, check for conformity, make adjustments to the equipment (where appropriate) and store product
 - 3.3 Collect material which is able to be reprocessed and reused, and deal with waste and scrap in accordance with workplace procedures (where applicable)
 - 3.4 Check readouts against standard statistical process information and enter production data into the control system
 - 3.5 Clean up equipment and work area and manage waste in accordance with workplace procedures.

- 4. Identify product quality requirements.
 - 4.1 Monitor process and note conditions which may affect product quality standards
 - 4.2 Report process variations within workplace procedures
 - 4.3 Note and implement authorised changes in standard operating procedures and specifications.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	2
Planning and organising activities	1
Working with others and in teams	2
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	1

RANGE STATEMENT

This competency applies to the operation of various forms of production equipment in all work environments and sectors within the plastics, rubber and cabling industry. It includes the operation of all relevant additional equipment.

Procedures means all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards.

- hand carts and trolleys
 - knives and other bag opening equipment
 - hoists/lifting equipment not requiring any special permits or licences
 - basic hand tools required for opening of material packaging
 - relevant personal protective equipment.
-
- automated or rotating equipment
 - dusts/vapours
 - hazardous materials
 - manual handling hazards
 - knife hazards.

'Rectify routine problems' means 'apply known solutions to a limited range of predictable problems'.

- equipment malfunctions
 - product jamming or sticking
 - power failures
 - air, oil or lubricant difficulties.
-
- variations in materials
 - contamination of materials
 - malformed or incomplete products.

All operations are performed in accordance with procedures.

EVIDENCE GUIDE**Essential knowledge and enterprise requirements:**

Application of knowledge of the materials, equipment and process sufficient to recognise material and equipment conditions which may lead to out of specification production.

Knowledge of the enterprise's procedures and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and work standards.

Competence includes the ability for the practical completion of the job to:

- apply and/or explain:
 - impact of incorrect or faulty materials
 - production workflow sequences and materials demand
 - focus of operation of work systems and equipment
 - correct selection and use of equipment, materials, processes and procedures
 - hazards of the materials and process and appropriate hazard control procedures
- distinguish between causes of faults such as:
 - wrong raw materials/additives
 - incorrect quantity of materials/additives
 - contaminated materials/additives
 - product variations from specification.

Critical aspects:

It is essential that competence is demonstrated in the ability to:

- understand the importance of critical material properties and quantities
- recognise potential situations requiring action and implement appropriate action.

Consistent performance should be demonstrated. In particular look to see that production standards are met consistently.

Language, literacy and numeracy requirements:

This unit requires the ability to read and interpret typical product specifications, job sheets, procedures, material labels and safety information as provided to operators.

Writing is required to the level of completing workplace forms.

Basic numeracy is required, eg, to determine that two 25 kg bags are needed to make up a requirement for 50 kg.

Assessment method and context:

Competence in this unit may be assessed:

- on an operating plant allowing for operation under all normal and a range of abnormal conditions
- by use of a suitable simulation and/or a range of case studies/scenarios
- by a combination of these techniques.

In all cases it is expected that practical assessment will be combined with targeted questioning to assess the underpinning knowledge and that the theoretical assessment will be combined with appropriate practical/simulation or similar assessment.

Resource implications:

This section should be read in conjunction with the range of variables for this unit of competency. Resources required include suitable access to an operating plant or equipment that allows for appropriate and realistic simulation. A bank of case studies/scenarios and questions will also be required to the extent they form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunchroom. No other special resources are required.

Pre-Requisites

This competency has **no** prerequisites.

PMBTECH502B Review and analyse production trials and specify retrials

Unit Descriptor

This competency covers the reviewing of trial results, analysing and correcting trial outcomes, and specifying and carrying out retrial procedures.

This competency is typically performed by technicians/technologists in all sectors of the industry.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Review trial results. | <ul style="list-style-type: none"> 1.1 Confirm trial objectives as a basis for comparison prior to review of results 1.2 Review trial OHS results and compare with specifications, current standards, good practice and trial objectives to identify variations 1.3 Review trial product quality results and compare with trial objectives to identify variations 1.4 Review trial production results and compare with trial objectives to identify variations. |
| 2. Analyse and correct trial outcome. | <ul style="list-style-type: none"> 2.1 Analyse trial results to establish priorities for the correction of parameters which are outside specifications 2.2 Recommend changes to achieve safety, product quality and production requirements 2.3 Identify safety, health and environment implications of recommended changes 2.4 Liaise with relevant stakeholders 2.5 Make changes in accordance with enterprise procedure to achieve the required product quality and production, health, safety and environment requirements. |
| 3. Specify and carry out retrial procedures. | <ul style="list-style-type: none"> 3.1 Specify retrial objectives and priorities in accordance with enterprise procedure 3.2 Carry out retrial variations to achieve the trial objectives in accordance with enterprise procedure 3.3 Record trial results in accordance with enterprise procedure. |

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	3
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	2
Using mathematical ideas and techniques	3
Solving problems	3
Using technology	3

RANGE STATEMENT

This competency applies to all work environments and sectors within the industry, but does require both a theoretical/mathematical and a practical analysis of the trial data.

The competency does not require a knowledge of industry sectors and materials other than that in which the technician works. It assumes an understanding of the operation of all relevant equipment and processes but does not necessarily require them to be used personally.

- preliminary product specifications (physical properties, size, weight, appearance)
- production requirements (output, rejects, yield, practical operating window)

- product quality results
- production results

- product design and specifications
- mould and/or tooling design and construction
- material grade
- machine configuration or specifications
- production specifications
- processing parameters

- product quality
- production requirements

- sample size
- machine parameters
- material grade changes
- mould, die and/or tooling changes
- machine configurations.

All operations are performed in accordance with standard procedures and policies.

EVIDENCE GUIDE

Essential knowledge and enterprise requirements

Knowledge and understanding of the materials, equipment and process sufficient to interpret trial results and specify appropriate retrial conditions.

Knowledge of the enterprise's procedures and policies along with the ability to implement them within appropriate time constraints and in a manner relevant to the job.

Competence includes the ability for the practical completion of the job to:

- calculate results from trial data
- interpret trial results in terms of trial objectives
- determine variations to trial procedures to overcome limitations found
- interpret results in terms of product end use requirements
- make recommendations for changes to materials, process and product based on trial results
- identify and address health, safety and environment impact of changes by applying the hierarchy of control.

Critical aspects

The critical aspect for this unit of competency is the ability to apply a thorough understanding of materials and processes to the interpretation of trial results. This understanding of material and process interactions should also be able to be applied in interpreting data and making judgements about the trials in terms of the trial objectives.

Language, literacy and numeracy requirements

This unit requires high levels of numeracy and literacy with the ability to interpret technical specifications and reports. Advanced numeracy allowing the calculation and interpretation of statistics, product formulae and process conditions is also required.

Assessment method and context

Competence in this unit may be assessed:

- on an operating plant over a timeframe which allows for operation under all normal and a range of abnormal conditions
- by use of a suitable simulation and/or a range of case studies/scenarios
- by a combination of these techniques.

In all cases it is expected that practical assessment will be combined with targeted questioning to assess the underpinning knowledge and theoretical assessment will be combined with appropriate practical/simulation or similar assessment.

Resource implications

Resources required include suitable access to an operating plant or equipment that allows for appropriate and realistic simulation. A bank of case studies/scenarios and questions will also be required to the extent that they form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunchroom. No other special resources are required.

Prerequisites

This unit of competency assumes the knowledge component included in the following units of competency. Evidence must be available that the specified knowledge has been acquired and is able to be applied:

- PMAOPS401B Trial new process/product.

PSPPM502A
Unit Descriptor

Manage projects

This unit covers management of projects which may be reasonably complex in terms of scope, degree of risk, political, cultural and social factors that apply, consequences of failure and degree of control of the project.

This competency is typically performed by senior technicians/technologists/team leaders or engineers working either independently or as part of a work team.

Unit Sector

No sector assigned

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---|---|
| 1. Apply knowledge of project management tools. | 1.1 A planning and monitoring system is applied and progress is reported to stakeholders
1.2 Financial management systems are implemented to address accountability standards
1.3 Project management tools are selected and applied effectively to achieve project outcomes. |
| 2. Manage acquisition. | 2.1 A contract is developed which is auditable in terms of scope of work, performance, deliverables, probity, fairness and value for money
2.2 Project change proposals are negotiated, agreed and documented in accordance with policy and procedures
2.3 Project plans and contracts are monitored, reviewed and amended as appropriate, and outcomes reported to stakeholders
2.4 Project progress is reported in relation to agreed milestones to provide a measure of performance throughout the life of the contract
2.5 Disagreements and disputes are resolved to the satisfaction of stakeholders. |
| 3. Co-ordinate project integration activities. | 3.1 All aspects of the project and related projects are integrated and links are established to ensure objectives are met
3.2 Consultation mechanisms are identified and staff and contractors are regularly consulted to discuss progress and ensure effective outcomes
3.3 Programmed review of objectives and achievement is planned and implemented. |

- 4. Arrange building/trialling/testing of project.
 - 4.1 Significant judgment is applied in the analysis of project outcomes against specifications, performance standards and project objectives, and reported to stakeholders
 - 4.2 Support package arrangements are identified and offered to stakeholders who will be required to adopt the project outcomes
 - 4.3 Environmental and cultural analysis is undertaken and outcome reported to stakeholders
 - 4.4 Operational and support authorities are consulted to investigate the requirement for testing and evaluation, and funds are included in project plans.

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	3
Collecting analysing and organising information	3
Planning and organising activities	3
Working with others and in teams	3
Using mathematical ideas and techniques	3
Solving problems	3
Using technology	3

RANGE STATEMENT

The range of variables provides information about the context in which the unit of competency is carried out. It allows for differences between States and Territories and the Commonwealth, and between organisations and workplaces. It allows for different work requirements, work practices, and knowledge. The range of variables also provides a focus for assessment and relates to the unit as a whole.

- legislation and regulations
- organisational guidelines and procedures including project management, recruitment, security, risk management, procurement guidelines and strategic plans.
- critical path method (CPM)
- bar and Gantt charts
- work breakdown structures
- program evaluation and review technique (PERT)
- database project management packages
- spreadsheets
- cost schedule control systems
- logistics support analysis
- life cycle cost analysis
- recording systems - electronic and manual.

- verbal orders
- written orders
- partly verbal and partly written orders
- deeds of agreement
- agreements and understandings of a non-legal nature.

- financial management plans
- acquisition strategies
- fraud control plans
- risk management plans
- project implementation plans
- transition plans
- integrated logistics support
- HRD/HRM plans
- specifications
- test and evaluation process
- training
- intellectual property
- industry impact
- quality assurance
- life cycle costs.

- customers
- production personnel
- other company personnel
- regulatory agencies
- senior management.

- engineering
- technical
- administration
- scope
- specifications.

- scope
- time
- cost
- quality
- human resources
- communications
- risk
- procurement.

- a contract
- spreadsheet
- progress reports
- performance reports against milestones.

EVIDENCE GUIDE

Critical aspects of evidence

- documented information and/or examples of personal work which confirms that the performance criteria have been applied on the job prior within relevant contexts outlined in the range statements.

Interdependent assessment of units

This competency has **no** prerequisite

Underpinning knowledge

- contract law
- scope of project
- project management systems
- procurement guidelines
- the organisation's culture
- political climate
- budgetary framework
- critical analysis
- business and commercial issues.

Underpinning skills

- negotiation techniques
- project management techniques
- problem solving techniques.

Resource implications

- no special requirements.

Consistency of performance

- knowledge and performance to be assessed over time to confirm consistency.

Context/s of assessment

- this competency may be assessed on or off the job.

TDTC497C
Unit Descriptor

Drive heavy rigid vehicle

This unit involves the skills and knowledge required to drive a heavy rigid vehicle safely including systematic and efficient control of all vehicle functions, monitoring of traffic and road conditions, management of vehicle condition and performance, and effective management of hazardous situations. Assessment of this unit will usually be undertaken within a licensing examination conducted by, or under the authority of, the relevant State/Territory Road Traffic Authority

Persons achieving competence in this unit will need to fulfil all of the relevant State/Territory learner permit or driver licence requirements before driving a heavy rigid vehicle on a public road.

Unit Sector

Driving Vehicle

ELEMENT

PERFORMANCE CRITERIA

- | | |
|--|--|
| 1. Drive the heavy rigid vehicle | <ul style="list-style-type: none"> 1.1 The heavy rigid vehicle is started, steered, manoeuvred, positioned and stopped in accordance with traffic regulations and manufacturer's instructions 1.2 Engine power is managed to ensure efficiency and performance and to minimise engine and gear damage 1.3 Engine operation is maintained within manufacturer's specified torque range and temperature through effective gear selection and smooth transition in gear changes 1.4 Braking system of heavy rigid vehicle is managed and operated to ensure effective control of the vehicle under all conditions 1.5 Driving hazards are identified and/or anticipated and avoided or controlled through defensive driving 1.6 The heavy rigid vehicle is driven in reverse, maintaining visibility and achieving accurate positioning. 1.7 The heavy rigid vehicle is parked, shut down and secured in accordance with manufacturer's specifications, traffic regulations and workplace procedures 1.8 Where required, overwidth and overweight permit applications are undertaken in accordance with relevant regulatory requirements 1.9 Appropriate procedures are followed in the event of a driving emergency |
| 2. Monitor traffic and road conditions | <ul style="list-style-type: none"> 2.1 The most efficient route of travel is taken through monitoring and anticipation of traffic flows and conditions, road standards and other factors likely to cause delays or route deviations 2.2 Traffic and road conditions are constantly monitored and acted upon to enable safe operation and ensure no injury to people or damage to property, equipment loads and facilities |

TDT497C Drive heavy rigid vehicle

- 3. Monitor and maintain vehicle performance
 - 3.1 Vehicle performance is maintained through pre-operational inspections and checks of the vehicle
 - 3.2 Performance and efficiency of vehicle operation is monitored during use
 - 3.3 Defective or irregular performance or malfunctions are reported to the appropriate authority
 - 3.4 Vehicle records are maintained/updated and information is processed in accordance with workplace procedures

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	1
Working with others and in teams	1
Using mathematical ideas and techniques	1
Solving problems	1
Using technology	2

RANGE STATEMENT

- Driving must be carried out in compliance with the licence requirements and regulations of the relevant State/Territory roads and traffic authority pertaining to heavy rigid vehicles
- Driving is performed with limited or minimum supervision, with limited accountability and responsibility for self and others in achieving the prescribed outcomes
- Driving involves the application of routine vehicle driving principles and procedures to maintain the safety and operation of a commercial heavy rigid vehicle across a variety of driving contexts

- Type of vehicle includes all heavy rigid vehicles, for example any rigid vehicle with 3 or more axles, including trucks or buses, greater than 8 tonnes GVM.
- Driving may be carried out in typical road transport situations, including:
 - operations conducted at day or night
 - typical weather conditions
 - on the open road
 - on a private road
 - while at a depot, base or warehouse
 - while at a client's workplace or work site
- Vehicle handling procedures may include:
 - starting a vehicle
 - steering and manoeuvring a vehicle
 - accelerating and braking
 - positioning and stopping a vehicle
 - reversing a vehicle
 - operating vehicle controls, instruments and indicators
 - using air brakes
 - using defensive driving techniques
 - managing engine performance
- Pre-operational checks may include:
 - visual check of vehicle
 - checking and topping up of fluid levels
 - checks of tyre pressures
 - checks of operation of vehicle lights and indicators
 - checks of brakes
- Minor routine repairs may include:
 - replacement of blown globes in vehicle lights
 - replacement of broken fan belt
 - replacement of blown fuse
 - replacement of door mirrors
 - repairs to rear tail-light lens
 - changing of tyres
 - repair of tyre punctures
 - replacement of broken coolant hose
- Driving hazards may include (examples only):
 - wet and iced roads
 - oil on road
 - animals and objects on road
 - fire in vehicle
 - leaking fuel
 - faulty brakes
 - parked vehicles on the road
 - faulty steering mechanism on vehicle
 - pedestrians crossing the road
 - flooded sections of road
 - windy sections of road
 - foggy conditions
 - work site hazards including power and service lines, buildings, structures, facilities, underground services, uneven or unstable ground and recently filled trenches, stationary and moving machinery and equipment,

- hazardous or dangerous materials, noise, light, energy sources, and obstructions
- Factors that can cause traffic delays and diversions may include:
 - traffic accidents
 - flooded sections of road
 - road damage
 - bridge/tunnel damage
 - road works
 - building construction
 - emergency situations such as bushfires, building fires, etc.
 - road closures for special events such as marches, parades, sporting events, etc.
 - holiday traffic
 - road closures for utility works such as electricity, water, sewerage, telecommunications, gas, etc.
- Depending on the type of organisation concerned and the local terminology used, workplace procedures may include:
 - company procedures
 - enterprise procedures
 - organisational procedures
 - established procedures
- Documentation/records may include:
 - State/Territory heavy rigid vehicle driving licence and permit requirements
 - State/Territory road rules
 - workplace driving instructions and procedures
 - vehicle manufacturer's instructions, specifications and recommended driving procedures including preoperational checks of vehicle
 - emergency procedures
 - vehicle log book or record book (where required)
 - relevant standards and certification requirements
 - quality assurance procedures
- Applicable procedures and codes may include:
 - relevant State/Territory roads and traffic authority driving regulations and licence/permit requirements pertaining to heavy rigid vehicles
 - relevant State/Territory road rules
 - relevant State/Territory permit regulations and requirements
 - relevant State/Territory OHS legislation
 - relevant State/Territory fatigue management regulations
 - relevant State/Territory environmental protection legislation

EVIDENCE GUIDE

Critical aspects of evidence to be considered

- Assessment must confirm appropriate knowledge and skills to:
 - follow correct heavy rigid vehicle handling procedures
 - monitor traffic and road conditions
 - carry out pre-operational checks
 - monitor and maintain vehicle performance
 - follow OHS and environmental protection procedures and regulations
 - follow emergency procedures when required

Interdependent assessment of units

- This unit of competency may be assessed in conjunction with other relevant competency units that form part of a transport worker's job function

Required knowledge and skills

- Relevant road rules, regulations, permit and licence requirements of the relevant State/Territory road traffic authority
- Relevant OHS and environmental procedures and regulations
- Heavy rigid vehicle controls, instruments and indicators and their use
- Heavy rigid vehicle handling procedures
- Procedures to be followed in the event of a driving emergency
- Engine power management and safe driving strategies
- Efficient driving techniques
- Pre-operational checks carried out on heavy rigid vehicle and related action
- Differences between transmission types
- Fatigue management techniques
- Principles of operation of air brakes and procedures for their use
- Fatigue management techniques
- Driving hazards and related defensive driving techniques
- Principles of stress management when driving a vehicle
- Factors which may cause traffic delays and diversions and related action that can be taken by a driver
- Workplace driving and operational instructions
- Causes and effects of fatigue on drivers
- Strategies to manage on-road fatigue
- Factors which increase fatigue-related accidents
- Lifestyles which promote the effective long-term management of fatigue
- Ability to read instructions, procedures and signage relevant to the driving of a heavy rigid vehicle
- Map reading and road navigation techniques
- Ability to monitor and anticipate traffic hazards and take appropriate action

Resource implications

- Access is required to opportunities to:
 - participate in a range of exercises, case studies and other real and simulated practical and knowledge assessments that demonstrate the skills and knowledge to drive a commercial heavy rigid vehicle equal to or less than 4.5 tonnes GVM and seating up to 12 adults (including the driver and all types of transmission), and/or
 - drive such a commercial heavy rigid vehicle in an appropriate range of operational situations

Consistency in performance

- Applies underpinning knowledge and skills when:
 - driving a heavy rigid vehicle
 - monitoring traffic and road conditions and taking appropriate action
 - carrying out pre-operational checks and taking appropriate action
 - monitoring and maintaining vehicle performance
 - exercising all required safety, environmental and hazard control precautions and procedures during driving operations
 - communicating effectively with others when driving a heavy rigid vehicle
 - completing required documentation
- Shows evidence of application of relevant workplace procedures including:
 - relevant State/Territory roads and traffic authority driving regulations and licence requirements pertaining to the class of vehicle
 - OHS policies and procedures
 - identification of driving hazards and the use of appropriate defensive driving techniques
 - workplace procedures and instructions (including security and housekeeping procedures)
 - relevant vehicle manufacturer's guidelines related to the driving of the heavy rigid vehicle
 - environmental protection procedures when driving a vehicle and carrying out pre-operational checks
- Action is taken promptly to report and/or rectify any identified vehicle faults or malfunctions in accordance with manufacturer's instructions, road traffic authority requirements and workplace procedures
- Performance is demonstrated consistently over a period of time and in a suitable range of contexts
- Work is completed systematically with required attention to detail and without injury to self or others or damage to goods or equipment

Context for assessment

- Assessment of competence must comply with the assessment requirements of the relevant State/Territory road traffic authority
- Assessment of this unit must be undertaken by a Registered Training Organisation:
 - As a minimum, assessment of knowledge must be conducted through appropriate oral and/or written questioning
 - Appropriate practical assessment must occur:
 - at the Registered Training Organisation, and/or
 - in an appropriate work situation

TDTD1097B
Unit Descriptor

Operate a forklift

This unit involves the skills and knowledge required to operate a forklift, including checking forklift condition, driving the forklift to fulfil operational requirements, monitoring site conditions and monitoring and maintaining forklift performance. Assessment of this unit will usually be undertaken within a licensing examination conducted by, or under the authority of, the relevant State/Territory OHS Authority.

Persons achieving competence in this unit will need to fulfil all of the relevant State/Territory OHS regulatory requirements concerning the safe operation of forklifts

Unit Sector

Load Handling

ELEMENT

PERFORMANCE CRITERIA

- | | |
|---------------------------------------|---|
| 1. Check forklift condition | <ul style="list-style-type: none"> 1.1 Condition of forklift is checked for compliance with OHS and workplace requirements for warning devices, manufacturer's specifications and the nature of the load shifting task 1.2 Attachments are checked to ensure appropriate adjustment and operation 1.3 Mirrors and seats are adjusted for safe operation by the driver 1.4 Log books are checked and appropriate workplace documentation is completed in accordance with workplace requirements |
| 2. Drive the forklift | <ul style="list-style-type: none"> 2.1 Forklift is started, steered, manoeuvred, positioned and stopped in accordance with regulations and manufacturer's instructions 2.2 Engine power is managed to ensure efficiency and performance and to minimise engine and gear damage 2.3 Operational hazards are identified and/or anticipated and avoided or controlled through defensive driving and appropriate hazard control techniques 2.4 Forklift is driven in reverse, maintaining visibility and achieving accurate positioning 2.5 The forklift is parked, shut down and secured in accordance with manufacturer's specifications, regulations and workplace procedures |
| 3. Operate a forklift to handle loads | <ul style="list-style-type: none"> 3.1 The lifting task to be undertaken is appropriately planned and the correct lifting truck and attachments are selected 3.2 The load is lifted, carried, lowered and set down in accordance with OHS legislation, manufacturer's specifications and company procedures |
| 4. Monitor site conditions | <ul style="list-style-type: none"> 4.1 When selecting the most efficient route, hazards and traffic flow are identified and appropriate adjustments are made 4.2 Site conditions are assessed to enable safe operations and to ensure no injury to people or damage to property, equipment, loads or facilities occurs |

- 5. Monitor and maintain forklift performance
 - 5.1 Performance and efficiency of vehicle operation is monitored during use
 - 5.2 Defective/irregular performance and malfunctions reported to relevant personnel
 - 5.3 Forklift records are maintained/updated in accordance with workplace procedures and legislative requirements

KEY COMPETENCIES

Key Competency	Performance Level
Communicating ideas and information	1
Collecting analysing and organising information	1
Planning and organising activities	2
Working with others and in teams	1
Using mathematical ideas and techniques	2
Solving problems	2
Using technology	2

RANGE STATEMENT

- Operation of a forklift must be carried out in compliance with the licence requirements and regulations of the relevant State/Territory authority
- Operation of a forklift is performed under some supervision, generally within a team environment
- Operation of a forklift involves the application of routine equipment operation principles and procedures to maintain the safety and operation of a forklift in a variety of operational contexts

- Types of forklift may include counterbalance trucks, reach trucks and pallet trucks
- Operations may be carried out in typical forklift operational situations, including:
 - operations conducted at day or night
 - typical weather conditions
 - on the open road
 - on a private road or worksite
 - while at a workplace
- Customers may be internal or external
- Workplaces may comprise large, medium or small worksites
- Work may be conducted in:
 - restricted spaces
 - exposed conditions
 - controlled or open environments
- Loads to be shifted may require special precautions
- Loads to be shifted may be:
 - irregularly shaped
 - packaged or unpackaged
 - labelled or unlabelled
 - palletted or unpalletted
- Hazards in the work area may include exposure to:
 - chemicals
 - dangerous or hazardous substances
 - movements of equipment, goods and materials
- Personnel in the work area may include:
 - workplace personnel
 - site visitors
 - contractors
 - official representatives
- Forklift handling procedures may include:
 - starting a forklift
 - steering and manoeuvring a forklift
 - accelerating and braking
 - positioning and stopping a forklift
 - reversing a forklift
 - operating forklift controls, instruments and indicators
 - using defensive driving techniques
 - managing engine performance
- Pre-operational checks may include:
 - visual check of forklift
 - checking and topping up of fluid levels
 - checks of tyres
 - checks of operation of forklift lights and indicators
 - checks of brakes
- Hazards may include (examples only):
 - wet and iced operating surfaces
 - oil on operating surface
 - faulty brakes
 - workplace obstacles and other operational equipment and vehicles
 - damaged loads and pallets

- other personnel in work area
- Depending on the type of organisation concerned and the local terminology used, workplace procedures may include:
 - company procedures
 - enterprise procedures
 - organisational procedures
 - established procedures
- Personal protection equipment may include:
 - gloves
 - safety headwear and footwear
 - safety glasses
 - two-way radios
 - high visibility clothing

- Information/documents may include:
 - goods identification numbers and codes, including IMDG markings and HAZCHEM signs
 - manifests, bar codes, picking slips, merchandise transfers, stock requisitions, goods and container identification
 - Australian Standard 2359 - Industrial Truck Code
 - manufacturer's specifications for forklift and associated equipment
 - operations and service record book or log
 - workplace procedures and policies for the operation of forklifts
 - supplier and/or client instructions
 - ADG Code and material safety data sheets
 - regulatory requirements concerning the use of forklifts
 - award, enterprise bargaining agreement, other industrial arrangements
 - standards and certification requirements
 - quality assurance procedures
 - emergency procedures

- Applicable procedures and codes may include:
 - relevant State/Territory regulations pertaining to the operation of forklifts
 - relevant codes and standards, including Australian Standard 2359 - Industrial Truck Code
 - relevant State/Territory OHS legislation
 - relevant State/Territory fatigue management regulations
 - relevant State/Territory environmental protection legislation

EVIDENCE GUIDE

Critical aspects of evidence to be considered

- Assessment must confirm appropriate knowledge and skills to:
 - operate a forklift safely in a workplace environment
 - handle loads and drive defensively
 - manage forklift controls, read instruments and adjust engine power to site requirements
 - locate, interpret and apply relevant information
 - carry out pre-operational checks on a forklift
 - work effectively with colleagues
 - convey information in written and oral form
 - maintain workplace records
 - use workplace colloquial and technical language and communication technologies in the workplace context
 - meet relevant regulatory requirements

Interdependent assessment of units

- This unit of competency may be assessed in conjunction with other units that are part of a worker's job function

Required knowledge and skills

- Knowledge of relevant duty of care requirements pertaining to the operation of a forklift
- Relevant OHS and environmental procedures and regulations
- Forklift controls, instruments and indicators and their use
- Forklift handling procedures
- Procedures to be followed in the event of an operational emergency
- Engine power management and safe operating strategies
- Efficient driving techniques
- Pre-operational checks carried out on forklift and related action
- Site layout and obstacles
- Operating hazards and related defensive driving and hazard control techniques
- Principles of stress management when driving a forklift
- Workplace operating procedures
- Ability to identify points of balance and safe lifting positions on a range of loads when operating a forklift
- Ability to read instructions, procedures and signage relevant to the operation of a forklift
- Ability to monitor and anticipate operational hazards and take appropriate action

Resource implications

- Access is required to opportunities to:
 - participate in a range of exercises, case studies and other real or simulated practical and knowledge assessments that demonstrate the skills and knowledge to operate a forklift to carry out a range of load shifting operations in a workplace, and/or
 - operate a forklift to shift loads in an appropriate range of operational situations

Consistency in performance

- Applies underpinning knowledge and skills when:
 - operating a forklift safely in workplace environment
 - handling loads and driving defensively
 - managing forklift controls, reading instruments and adjusting engine power to site requirements
 - locating, interpreting and applying relevant information
 - carrying out pre-operational checks
 - working effectively with colleagues
 - conveying information in relevant form
 - maintaining workplace records
- Shows evidence of application of relevant workplace procedures including:
 - relevant State/Territory regulations and licence requirements pertaining to forklift operation
 - OHS policies and procedures
 - identification of operational hazards and the use of appropriate defensive driving and hazard control techniques
 - workplace procedures and work instructions (including security and housekeeping procedures)
 - forklift manufacturer's guidelines and instructions
 - environmental protection procedures when operating a forklift and carrying out pre-operational checks
- Action is taken promptly to report and/or rectify accidents, incidents and any identified faults or malfunctions in accordance with manufacturer's instructions, regulatory requirements and workplace procedures
- Performance is demonstrated consistently over a period of time and in a suitable range of contexts
- Work is completed systematically with required attention to detail and without injury to self or others or damage to goods or equipment

Context for assessment

- Assessment of competence must comply with the assessment requirements of the relevant State/Territory forklift licensing authority
- Assessment of this unit must be undertaken by a Registered Training Organisation:
 - As a minimum, assessment of knowledge must be conducted through appropriate oral and/or written questioning
 - Appropriate practical assessment must occur:
 - at the Registered Training Organisation, and/or
 - in an appropriate work situation



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