



Australian Government

Department of Education, Employment and Workplace Relations

PMBPROD255C Operate mixing equipment

Revision Number: 1

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Modification History

Not applicable.

Unit Descriptor

Unit descriptor

This competency covers the operation of mixing equipment to prepare materials to specification.

Application of the Unit

Application of this unit

This competency applies to operators who are involved in the mixing of materials using mixing equipment, maintaining personal safety and the safety of others within the context of production output and quality requirements. This competency is typically performed by all operators working either independently or as part of a work team.

The operator:

- checking materials and equipment for quality and conformity to specifications
- checks raw material feed
- notices any problems and takes required action (eg reporting)
- deal with non-conforming products, waste and scrap
- completes logs and reports.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisites

This unit has **no** prerequisites.

Employability Skills Information

Employability Skills

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

ELEMENT	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a unit of competency	Performance Criteria describe the required performance needed to demonstrate achievement of the Element. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

ELEMENT ELEMENT	PERFORMANCE CRITERIA Performance Criteria describe the required performance needed to demonstrate achievement of the Element. Assessment of performance is to be consistent with the Evidence Guide.
1. Check work requirements.	1.1 Identify work requirements from production plan or request. 1.2 Check product, materials and equipment meet requirements for job(s). 1.3 Recognise requirements which may not be in accordance with usual practice. 1.4 Ask questions of appropriate person to confirm unusual practice. 1.5 Identify hazards associated with the job and take appropriate action. 1.6 Perform other pre-operational checks in accordance with procedures.
2. Start up equipment to procedures.	2.1 Conduct pre-start checks. 2.2 Start up mixing equipment.
3. Operate mixing equipment to procedures.	3.1 Check process is operating within required limits. 3.2 Check materials are in specification and to required quality standard. 3.3 Maintain supply of material(s) as required. 3.4 Complete logs and records as required. 3.5 Collect and segregate scrap, trim and other materials as required. 3.6 Keep equipment and work area clean. 3.7 Pause machine cycle and perform emergency stop, as required.
4. Respond to routine problems in accordance with procedures.	4.1 Recognise known faults that occur during the operation. 4.2 Identify and take action on causes of routine faults. 4.3 Log problems as required. 4.4 Identify non-routine process and quality problems and take appropriate action.

Required Skills and Knowledge

This describes the essential skills and knowledge and their level required for this unit.

Application of an operational knowledge of the materials, equipment and process sufficient to recognise out of specification products, process problems and materials faults. For example, de-gassing of the mixture may be required prior to being delivered to the mix head in some equipment, or after if there are still air bubbles present in the mixture. Therefore, the mixing process should be monitored at all times to identify when adjustments are needed, ensuring the finished product is to specifications.

Knowledge of organisation procedures and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and work standards.

Application of the knowledge of managing risks using the hierarchy of controls applied to the mixing process. Application of approved hazard control and safety procedures and the use of PPE in relation to handling materials, equipment operation and cleanup.

Knowledge of and skills in the operation of mixing equipment and main components sufficient for consistent production of quality products including:

- production workflow sequences and materials demand
- the reasons for checking process control panels and reporting readings which are outside of normal range of process variability
- accurately monitoring equipment operation and product quality
- the potential effects of variations in raw materials and equipment operation in relation to quality of product
- processing behaviour of polymers and the role of additives
- waste management and knowing the importance of reusing non-conforming products wherever possible
- explain the effect of unauthorised or emergency shutdown in relation to safety and production requirements
- identify factors which may affect product quality or production output and appropriate remedies.

Competence includes the ability to:

- plan own work, including predicting consequences and identifying improvements
- identify when the operator is able to rectify faults, when assistance is required and who is the appropriate source for assistance
- identify and describe own role and role of others involved directly in operating mixing equipment.

Language, literacy and numeracy requirements

This unit requires the ability to read and interpret typical product specifications, job sheets and material labels as provided to operators.

Writing is required to the level of completing workplace forms.

Basic numeracy is also required.

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 this Training Package.

Overview of assessment

A holistic approach should be taken to the assessment.

Assessors must be satisfied that the person can consistently perform the unit as a whole, as defined by the Elements, Performance Criteria and skills and knowledge.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

It is essential that competence is demonstrated in the knowledge and skills defined in this unit. These may include the ability to:

- apply the required skills and knowledge to operate mixing equipment
- apply approved procedures.

Consistent performance should be demonstrated. For example, look to see that:

- mixing production standards are met consistently
- all safety procedures are adhered to.

Assessment method and context

Assessment will occur on industrial mixing equipment and will be undertaken in a work-like environment.

Competence in this unit may be assessed:

- by using an appropriate, industrial mixing machine requiring demonstration of operation and emergency stop procedures
- in a situation allowing for the generation of evidence of the ability to respond to problems
- by using a suitable simulation and/or a range of case studies/scenarios
- through 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. Assessors need to be aware of any cultural issues that may affect responses to questions.

Assessment processes and techniques must be culturally appropriate and appropriate to the oracy, language and literacy capacity of the assessee and the work being performed.

Specific resources for assessment

This section should be read in conjunction with the Range Statement 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.

Access must be provided to appropriate learning and/or assessment support when required. Where applicable, physical resources should include equipment modified for people with disabilities.

Range Statement

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. Add any 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. Where reference is made to industry codes of practice, and/or Australian/international standards, the latest version must be used.

Context

This competency applies to the processes required to mix materials to specification using mixing equipment. Materials may be any resin, multi-part mix or blend requiring specified quantities of raw materials and additives to meet a specification or recipe. It also includes the operation of all relevant additional equipment where that equipment is integral to the mixing process.

Procedures

All operations are performed in accordance with procedures.

Procedures include all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards.

Tools and equipment

This competency includes use of equipment and tools such as:

- measurement devices (such as measuring flasks, containers, weighing machines, scales or meters)
- mixing or blending equipment (such as stirrers, paddle, propeller or other driven mixer)
- relevant personal protective equipment.

Hazards

Typical hazards include:

- hazardous materials and vapours
- temperature
- manual handling
- stationary and moving machinery, parts and components.

Problems

'Respond to routine problems' means 'apply known solutions to a limited range of predictable problems'.

Typical process problems may include:

- incorrect machine settings (such as temperatures)
- incorrect measurements of materials
- damaged equipment and equipment components
- poor blending of raw materials.

Typical product problems may include:

- poor surface finish
- poor colour dispersion
- bubbles in mixture.
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Unit Sector(s)

Not applicable.