



Australian Government

MSMOPS401 Trial new process or product

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MSAPMOPS401A Trial new process or product

Application

This unit of competency covers the skills and knowledge required to take a lead technical role in the trialling of a new or significantly altered product or process. The new/changed product/process has been independently developed and its development is not part of this unit.

The unit of competency applies to a person in a technician role in a plant or a similar role. The technician is expected already to be a technical expert in that part of the plant/process where the trial is being conducted and be able to operate and control all equipment required for the trial. The technician is often 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 they are required to have the competence to direct the operation of equipment as appropriate throughout the trial.

Typically the technician will be part of a team during the trial and will work in conjunction with a process/product development expert, such as a chemist or engineer and liaise and cooperate with other members of the team.

Trialling 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. Trialling may be done on a pilot plant where available and/or on a full scale plant.

This unit of competency does not apply to minor modifications to existing products or processes. Similarly it does not apply to a technician or operator taking part in such trials and/or who is simply following directions from a technician, chemist, engineer, supervisor or manager.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Operations

Unit Sector

Elements and Performance Criteria

Elements describe the Performance criteria describe the performance needed to

essential outcomes		demonstrate achievement of the element	
1	Contribute to the selection of equipment/ process conditions	1.1	Liaise with appropriate technical experts
		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 meet 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 permit and other authorisation requirements and special safety and storage requirements
		2.8	Verify decisions with appropriate experts/stakeholders
		2.9	Ensure people with adequate skills are available for the

trial

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| 3 | Conduct trials | 3.1 | Ensure hazard controls are implemented prior to commencement |
| | | 3.2 | Run trials |
| | | 3.3 | Maintain communication with all relevant personnel |
| | | 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 or low charge amounts |
| | | 4.3 | Recommend modifications and improvements required |
| | | 4.4 | Develop and check standard operating procedures (SOPs) |
| | | 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 |

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Regulatory framework The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used, and include one or more of the following:

- legislative requirements, including work health and safety (WHS)
- industry codes of practice and guidelines
- environmental regulations and guidelines
- Australian and other standards
- licence and certification requirements

All operations to which this unit applies are subject to stringent health, safety and environment (HSE) requirements, which may be imposed through state/territory 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.

Procedures All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, and include one or more of the following:

- emergency procedures
- work instructions
- SOPs
- safe work method statements (SWMS)
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant

Technical experts

Technical experts include one or more of the following:

- manufacturers
- chemists
- engineering personnel
- designers
- WHS advisors
- maintenance personnel
- potential customers

Non-routine problems

Routine problems must be resolved by applying known solutions.

Non-routine problems must be resolved by applying operational knowledge to develop new solutions, either individually or in collaboration with relevant experts, to:

- determine problems needing action
- determine possible fault causes
- develop solutions to problems which do not have a known solution
- follow through items initiated until final resolution has occurred
- report problems outside area of responsibility to designated person

Non-routine problems are unexpected problems, or variations of previous problems and include one or more of the following:

- mixing is poor
- materials do not behave as expected
- 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

Operational knowledge includes one or more of the following:

- procedures
- training
- technical information, such as journals and engineering specifications
- remembered experience
- relevant knowledge obtained from appropriate people

Hazard analysis procedures

Hazard analysis procedures must be undertaken, however, it is not required that the candidate conducts the procedures. Hazard analysis procedures include one or more of the following:

- job safety analysis (JSA)/job hazard analysis (JHA)
- hazard and operability (HAZOP) studies
- hazard analysis (HAZAN) studies
- similar company specified procedures

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=d1287d36-dff4-4e9f-ad2c-9d6270054027>

Assessment Requirements for MSMOPS401 Trial new process or product

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and demonstrate the ability to:

- analyse technical information from a range of sources
- determine recommendations for new process or product, including:
 - materials
 - equipment
 - process and process conditions
 - required variations in process variables
- plan the trials
- conduct trials
- communicate and liaise with people at a range of levels about technical matters
- write technical documentation, including specifications and procedures required for the trial
- ensure formal hazard analysis procedures are undertaken
- recognise early warning signs of equipment/processes or potential problems needing attention
- isolate the causes of problems to an item of equipment within the plant system
- identify any additional skills needs.

Knowledge Evidence

Evidence must be provided that demonstrates knowledge of:

- organisation procedures
- relevant technical theory of the plant area
- chemistry and/or physics and/or biology/biochemistry relevant to changes to materials during processing
- effects of variations in process conditions and materials
- routine and non-routine problems that may arise, the range of possible causes and processes to develop solutions
- methods of changing rate and the advantages and disadvantages of each
- methods of controlling other process variables and the advantages and disadvantages of each.

Assessment Conditions

- The unit should be assessed holistically and the judgement of competence based on a holistic assessment of the evidence.
- The collection of performance evidence is best done from a report and/or folio of evidence drawn from:
 - a single project which provides sufficient evidence of the requirements of all the elements and performance criteria
 - multiple smaller projects which together provide sufficient evidence of the requirements of all the elements and performance criteria.
- The trial may, or may not be a success.
- A third-party report, or similar, may be needed to testify to the work done by the individual, particularly when the project has been done as part of a project team.
- Assessment should occur in operational workplace situations. Where this is not possible or practical, assessment must occur in a sufficiently rigorous simulated environment reflecting realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Knowledge evidence may be collected concurrently with performance evidence or through an independent, process, such as workbooks, written assessments or interviews (provided a record is kept).
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- The regulatory framework will be reflected in workplace policies and procedures and is not required to be independently assessed.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- As a minimum, assessors must satisfy the Standards for Registered Training Organisations 2015 assessor requirements.

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