



Australian Government

PMBPROD431 Trial a new, advanced or complex mould

Release: 1

PMBPROD431 Trial a new, advanced or complex mould

Modification History

Release 1. Supersedes and is equivalent to PMBPROD431B Trial a new, advanced or complex mould

Application

This unit of competency covers the skills and knowledge required to trial new, advanced or complex moulds. It applies to 'low pressure' moulds as used in rotomoulding, thermoforming and composites manufacturing.

This unit of competency applies to technicians who are required to install required tooling, prepare machines for trials, perform trial procedures and make adjustments as required.

This unit of competency applies to technicians demonstrating theoretical and technical knowledge and well developed skills in situations that require some discretion and judgement. The technicians may work alone or as a member of a team or group and will work in liaison with other shift team members, team leader and supervisor, as appropriate.

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

Pre-requisite Unit

Nil

Competency Field

Production

Unit Sector

Not applicable

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1	Determine trial requirements	1.1	Gather all relevant information available
		1.2	Interpret job sheets or equivalent instructions correctly
		1.3	Confirm machine/equipment suitability
		1.4	Confirm mould state

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| | | 1.5 | Confirm readiness of raw materials |
| 2 | Set mould and machine | 2.1 | Follow safe working practices |
| | | 2.2 | Fit and set up mould |
| | | 2.3 | Set up process condition |
| | | 2.4 | Set machine to meet specifications and operational requirements |
| | | 2.5 | Dry cycle machine and mould to procedures |
| 3 | Perform mould trial | 3.1 | Carry out trial process following enterprise procedures |
| | | 3.2 | Identify and record variations from specifications |
| | | 3.3 | Monitor control panel and interpret test results for fluctuations, variations and trends |
| | | 3.4 | Determine process limitations with respect to product and production specifications |
| | | 3.5 | Adjust controls to ensure parameters are maintained to job specifications |
| 4 | Rectify equipment and quality problems | 4.1 | Identify range of faults that will affect product and production specifications |
| | | 4.2 | Determine changes required to tooling and equipment to meet product and production specifications |
| | | 4.3 | Maintain appropriate records related to machinery and equipment to enterprise standards |
| | | 4.4 | Identify problems |
| | | 4.5 | Identify worn or damaged tooling and change as required |
| | | 4.6 | Rectify problems that are within area of responsibility |
| | | 4.7 | Report problems that are outside area of responsibility to appropriate personnel |

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| 5 | Complete trial | 5.1 | Shut down equipment as required |
| | | 5.2 | Record trial results |
| | | 5.3 | Return machine to service |
| | | 5.4 | Instruct machine operator |

Foundation Skills

This section describes those required skills (language, literacy and numeracy) 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.

Applicable legislation, regulations, standards and codes of practice include:

- health, safety and environmental (HSE) legislation, regulations and codes of practice relevant to the workplace, equipment and production processes and hazardous materials
- Australian/international standards relevant to the materials being used and products being made
- any relevant licence and certification requirements.

All operations to which this unit applies are subject to stringent 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 such requirements the legislative requirements take precedence.

Equipment

Equipment includes the setting and trial of one or more of:

- rotational moulding machines:
 - rock and roll
 - clamshell
 - vertical or up and over rotational
 - shuttle
 - swing arm
 - carousel
- thermoforming:
 - wood patterns moulds
 - cast aluminium moulds
 - machined aluminium moulds
 - composite moulds
 - complex moulds
- vacuum forming systems
- similar systems.

Operational requirements

Operational requirements include one or more of:

- mould set up and adjustment
- machine speed
- ratios for rotation
- cycle time
- external temperatures
- humidity
- type of heating used
- cooling rates
- product quality measures
- any other specified requirement.

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 any combination of:

- emergency procedures
- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)

- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant.

Hazards

Hazards must be identified and controlled. Identifying hazards requires consideration of:

- material spills or leaks
- hazardous products and materials
- manual handling hazards
- stationary and moving machinery
- machinery hazards
- protrusions or obstructions
- slippery surfaces
- smoke, dust, fumes, vapours or other atmospheric hazards
- humidity, air temperatures and radiant heat
- noise, light and energy sources
- other hazards that might arise.

Causes of faults

Causes of faults include one or more of:

- materials
- heat
- equipment adjustment
- equipment set-up.

Problems/solutions

Problems/solutions include one or more of:

- selecting the right tools for a new job
- using new and untried moulds
- adapting the process to the new product and die/tool
- observing the process to obtain useful trial data
- comparing the product to the desired specification
- determining the cause of non-compliances.

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=932aacef-7947-4c80-acc6-593719fe4090>

Assessment Requirements for PMBPROD431 Trial a new, advanced or complex mould

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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:

- read and interpret procedures, job specifications, material labels and safety data sheets (SDS)
- determine production requirements
- discuss work progress with other workers
- conduct pre-start checks
- start up and shut down equipment following appropriate procedures
- inspect product conformance to requirements
- identify and rectify routine faults
- identify routine product problems and notify appropriate persons
- distinguish between causes of problems, including:
 - operational problems
 - materials properties
 - process variables
 - procedural errors
- store equipment, materials and product appropriately
- adhere to safety requirements.

Knowledge 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 knowledge of:

- the impact of incorrect or faulty materials
- types of products made with different processes
- changes to raw materials during the process
- production work flow sequences and materials demands
- selection practices for equipment, materials, processes and procedures
- production equipment capability
- materials and process hazards
- appropriate hazard control procedures
- the importance of material properties and qualities

- the importance of process conditions
- approved procedures
- appropriate action to resolve faults or report faults
- start-up and shutdown procedures
- safety requirements.

Assessment Conditions

- The unit should be assessed holistically and the judgement of competence shall be based on a holistic assessment of the evidence.
- The collection of performance evidence:
 - should occur over a range of situations
 - will typically include a supervisor/third-party report or other evidence, focusing on consistent performance and problem recognition and solving. A supervisor/third-party report must be prepared by someone who has a direct, relevant, current relationship with the person being assessed and who is in a position to form a judgement on workplace performance relevant to the unit of competency
 - must include the use of appropriate industrial equipment requiring demonstration of operation, start and stop procedures and responding to problems
 - may use industry-based simulation for all or part of the unit particularly where safety, lack of opportunity or significant cost is an issue.
- Assessment should occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors assessment must occur in a sufficiently rigorous simulated environment that reflects 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.
- 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.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- In addition the assessor or anyone acting in subject matter expert role in assessment shall demonstrate both technical competency and currency. If the assessor cannot demonstrate technical competency and currency they shall assess with a subject matter expert who does meet these requirements.
- Technical competence can be demonstrated through one or more of:

- relevant VET or other qualification/Statement of Attainment
- appropriate workplace experience
- appropriate workplace experience supervising/evaluating the type of work being assessed
- Currency can be demonstrated through one or more of:
 - being currently employed undertaking the type of work being assessed
 - being employed by the organisation undertaking the type of work being assessed and having maintained currency
 - having consulted/had contact with an organisation undertaking the type of work being assessed within the last twelve months, the consultation/contact being related to assessment
 - conducting on the job training/assessments of the type of work being assessed.

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