



Australian Government

Department of Education, Employment and Workplace Relations

PMBPROD431B Trial a new, advanced or complex mould

Revision Number: 1

PMBPROD431B Trial a new, advanced or complex mould

Modification History

Not applicable.

Unit Descriptor

Unit descriptor

This competency covers the trialling of a new, advanced or complex mould. It is intended to be applied to 'low pressure' moulds as used in rotomoulding, thermoforming and composites manufacturing and not to dies such as might be used for injection or blow moulding.

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

Application of the Unit

Application of this unit

This competency applies to technicians who are involved in the trialling of moulds. The key factors are the monitoring of the production process and identifying routine problems.

The technician will:

- check job sheets for work to be done
- conduct pre-start checks
- start up and shut down equipment
- monitor equipment during production process
- identify routine production problems and notify appropriate persons

It does not apply to situations such as 'high pressure' dies or tools used in injection or blow moulding (see *PMBPROD430A*).

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisites

This unit has **no** prerequisites.

Employability Skills Information

Employability Skills

The required outcomes described in this unit contain applicable Employability Skills. The Employability Skills Summary of the qualification(s) in which this unit is packaged will assist in identifying Employability Skill requirements.

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. Prepare for trial to procedures.	1.1 Gather all relevant information available at the enterprise. 1.2 Confirm machine/equipment suitability. 1.3 Confirm mould state. 1.4 Confirm raw materials readiness.
2. Set mould and machine.	2.1 Fit and set up mould. 2.2 Set up speed and ratios for rotation/'rock and roll'. 2.3 Set control panel to cycle time according to external temperature, humidity, type of heating used, cooling time. 2.4 Dry cycle machine and mould to procedures.
3. Trial mould, interpret data and adjust operation to procedures.	3.1 Carry out trial procedures in a systematic manner to meet trial objectives. 3.2 Identify and record variations from normal. 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. 3.6 Check that process operation has improved. 3.7 Continue analysing data and making adjustments until desired level of process operation is achieved and product is within specifications. 3.8 Shut down equipment as required. 3.9 Record trial results.
4. Rectify equipment and quality problems to procedures.	4.1 Identify the range of equipment and quality faults that can occur during the operation. 4.2 Determine and rectify equipment and quality fault causes. 4.3 Identify and rectify equipment failure causes. 4.4 Make sure appropriate records and log books of equipment operations are maintained. 4.5 Identify non-routine problems are and rectify

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	within area of responsibility. 4.6 Report problems outside area of responsibility to designated person.

Required Skills and Knowledge

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

Knowledge and understanding of the materials, equipment and process sufficient to recognise and rectify potential problems. Knowledge of organization 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.

Understanding of the polymer/process interactions.

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

Knowledge as a basis for solving processing and material problems, including:

- product specifications and limitations
- production equipment capability
- types and grades of materials and their limitations
- die or tool conditions and operational limitations
- use of ancillary equipment.

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.

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:

- understand procedures and know the importance of critical material properties and quantities
- recognise potential situations requiring action and then in implementing appropriate action.

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

- new or un-tried moulds are tested thoroughly
- product quality and output standards are met consistently
- problems are anticipated from process observations

- problems are efficiently resolved
- the process runs consistently and smoothly.

Assessment method and context

Assessment will occur on industrial equipment in a work-like environment.

Competence in this unit may be assessed:

- on a processing plant, allowing for operation under all normal and a range of abnormal conditions
- in a situation allowing for the generation of evidence of the ability to recognise, anticipate and 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 all plastic and rubber processes which involve a mould. It applies to complex composite moulds, rotomoulding and thermoforming systems,. It does not apply to situations such as injection or blow moulding dies.

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:

- hand tools as required
- relevant personal protective equipment.

Equipment types may include:

- rotational moulding (eg fixed spindle, single spindle, multiple spindle, shuttle open-flame, swing, carousel, shuttle and 'rock and roll').
- complex composite moulds
- complex thermoforming moulds.

Hazards

Typical hazards include:

- noise, light, energy sources
- humidity, air temperatures, radiant heat
- stationary and moving machinery, parts and components.

Problems

'Anticipate and solve problems' means resolve a wide range of routine and non-routine problems, using product and process knowledge to develop solutions to problems which do not have a known solution/a solution recorded in the procedures.

Typical process and product problems may include:

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

Variables

Key variables to be monitored include:

- performance of mould
- temperatures
- machine speed
- materials, quantities and composition
- product quality requirements.
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Unit Sector(s)

Not applicable.