



Australian Government

Department of Education, Employment and Workplace Relations

PMBPROD270B Operate injection blow moulding equipment

Revision Number: 1

PMBPROD270B Operate injection blow moulding equipment

Modification History

Not applicable.

Unit Descriptor

Unit descriptor

This competency covers the operation of injection blow moulding equipment and the resolving of routine problems to procedure.

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

Application of the Unit

Application of this unit

This competency applies to operators who are required to undertake the routine operation of injection blow moulding equipment. The key factors are the making of products to meet quality standards and workplace requirements.

It includes:

- checking job sheets for work requirements
- recognising hazards and taking appropriate action
- starting up and shutting down injection blow moulding equipment
- monitoring injection blow moulding equipment operation and reporting process variations
- checking product for quality and conformity to specifications
- discarding non-conforming products, ensuring re-use where possible
- identifying and taking action on routine process problems
- completing logs and reports.
-

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 procedures. 1.2 Identify product, materials and equipment requirements for job(s). 1.3 Recognise hazards and take appropriate action. 1.4 Check with supervisor/appropriate person if requirements are not in accordance with usual practice.
2. Conduct pre-start checks as required.	2.1 Check safety gates and guards are in position and working. 2.2 Check raw materials are correct. 2.3 Undertake other pre-start checks to procedures. 2.4 Start up equipment safely and 'dry run' to warm hydraulics and components to operating temperature before production, as required.
3. Operate equipment to procedures.	3.1 Check condition of equipment and introduce raw materials as required. 3.2 Check product/process is within required limits. 3.3 Collect products and store as required. 3.4 Check product is in specification/to required quality standard. 3.5 Maintain supply of material(s) as required. 3.6 Complete logs and records when required. 3.7 Collect and reprocess/discard scrap/trim and other materials. 3.8 Clean up equipment and work area. 3.9 Pause equipment, or stop equipment in an emergency, as required.
4. Respond to routine problems to 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 knowledge of the materials, equipment and process sufficient to recognise out of specification products, process problems and materials faults.

Knowledge of organization 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 injection blow moulding process. Application of approved hazard control, safety procedures and the use of PPE in relation to handling materials, equipment operation and cleanup.

Knowledge of and skills in the operation of injection blow moulding 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
- correct selection and use of equipment, materials, processes and procedures
- 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 also 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 the injection moulding process.

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 for a requirement for 50 kg.

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:

- recognise the importance of material properties and qualities
- apply approved procedures
- take appropriate action to resolve faults or report faults to appropriate personnel
- explain and implement emergency shutdown procedures.

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

- injection blow moulding production standards are met consistently upstream and downstream communication is timely and effective operating procedures and work instructions are read and interpreted correctly
- problems are identified and appropriate action is taken (ie the problem is fixed or reported)
- all safety procedures are followed.

Assessment method and context

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

Competence in this unit may be assessed:

- by using an appropriate, industrial injection blow moulding 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 all injection blow moulding operations within the plastics and rubber sectors. It includes the operation of all relevant additional equipment where that equipment is integral to the injection blow moulding 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:

- electrical, pneumatic, mechanical, electromechanical and hydraulic injection blow moulding machines and components such as base, frame, feed hoppers and material supply mechanisms, barrel and screw plastification unit, injection blow units, die/ mould tool additional equipment, including chillers/cooling towers, die heating equipment, hopper driers, mixing hoppers, dehumidifying driers, air compressors, dosing machines, colour blending equipment and conveyors
- hand tools used in the injection blow moulding process
- material loading equipment used for loading of raw materials
- relevant personal protective equipment.

Hazards

Typical hazards include:

- spills
- dusts/vapours
- slip and fall, particularly due to spilt granules
- temperature
- hazardous substances
- moving equipment
- manual handling hazards.

Problems

'Respond to routine problems' means 'apply known solutions to a limited range of predictable problems'. Typical process and product problems may include:

- equipment malfunction
- variations in temperature, pressure, speed, inflation
- variations in materials or contamination of materials
- mould damage

- routine injection blow moulding faults - wall thinning, holes, poor surface finish, warping, poor colour dispersion, ejection damage, colour contamination, black spots and other defects
- mould/tooling problems.

Variables

Key variables to be monitored include:

- operating temperatures
- speed
- cycle time
- output rate
- concentration or dispersion of colour
- product weight
- product wall thickness
- product integrity and general conformance to specification/sample.
-

Unit Sector(s)

Not applicable.