



Australian Government

PMBPROD310E Produce injection moulded products

Release: 1

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Modification History

Release 1. Unit code changed. Application changed. Elements and Performance Criteria changed. Range of Conditions removed. Assessment Requirements changed. Supersedes and is equivalent to PMBPROD310 Produce injection moulded products.

Application

This unit describes the skills and knowledge required to operate, control and optimise injection moulding equipment and processes to produce injection moulded products to specification.

This unit applies to an experienced technician working alone or as part of a team.

The unit principally refers to the application of detailed polymer and machine knowledge relating to the injection moulding process to optimise polymer usage, energy usage, product performance and output cycle time.

No licensing or certification requirements exist at the time of publication. Relevant legislation, industry standards and codes of practice within Australia must be applied.

Pre-requisite Unit

Nil

Competency Field

Production – Injection Moulding

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Plan work requirements	1.1 Identify materials requirements, including additives and regrind amounts or percentage-based ratios, from job specifications 1.2 Identify and calculate equipment requirements from job specifications 1.3 Identify processes required for production and upstream and downstream operations from job specifications 1.4 Perform pre-operational checks including checking for and controlling hazards

Elements Elements describe the essential outcomes.	Performance Criteria Performance criteria describe the performance needed to demonstrate achievement of the element.
	1.5 Identify and check emergency stops, guards and controls 1.6 Identify checks and testing processes required for equipment, materials, quality and production management to meet job requirements 1.7 Identify housekeeping tasks and waste management strategies to collect excess, discarded or nonconforming materials to be disposed of, recycled or reprocessed according to workplace procedures
2. Perform pre-production tasks	2.1 Set production process according to equipment and work requirements, and adjust process to optimise output based on selected materials 2.2 Set up and adjust injection moulding equipment settings according to equipment and job specifications 2.3 Verify materials are correct against job specifications 2.4 Set up date, batch and materials markings according to workplace procedures 2.5 Undertake other pre-startup checks according to equipment specifications and workplace procedures
3. Operate and adjust injection moulding equipment	3.1 Start up and operate injection moulding process, and make adjustments to settings to meet job specifications 3.2 Ensure process is operating according to equipment specifications and workplace procedures 3.3 Follow checking and testing processes to assess if output meets job specifications and quality standards, and apply strategies for managing non-conforming outputs 3.4 Maintain continuity of process to support production 3.5 Accurately complete logs and records 3.6 Work efficiently to minimise scrap and trim according to workplace procedures 3.7 Clean work area, and clean, adjust and lubricate equipment according to equipment specifications and workplace procedures 3.8 Pause or stop equipment in normal and abnormal circumstances according to workplace procedures
4. Shut down machine	4.1 Determine type of shutdown and the process to be followed from equipment instructions and workplace procedures 4.2 Purge machine using appropriate workplace methods and

Elements Elements describe the essential outcomes.	Performance Criteria Performance criteria describe the performance needed to demonstrate achievement of the element.
	materials 4.3 Shut down equipment according to equipment instructions and workplace procedures 4.4 Complete equipment clean-up and post-production adjustments according to equipment instructions 4.5 Put guards, locks and notices in place to prevent inadvertent startup according to equipment specifications and workplace procedures 4.6 Accurately complete workplace shutdown documentation 4.7 Clean and clear work area after the shutdown in readiness for the next startup
5. Anticipate and solve process control variances	5.1 Recognise existing or potential process control variances and their causes 5.2 Determine, prioritise and implement remedial and preventative actions based on identified issues and causes 5.3 Monitor process control variances and corrective actions taken until resolved 5.4 Accurately complete records and logbooks

Foundation Skills

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

- Numeracy skills to interpret technical information and equipment readings.
- Reading skills to interpret specifications and workplace procedures.
- Writing and oral communication skills to record and report on injection moulding production.

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

Unit Mapping Information

Supersedes and is equivalent to PMBPROD310 Produce injection moulded products.

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 PMBPROD310E Produce injection moulded products

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Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and demonstrated the ability to:

- produce injection moulded products at least once to meet job specifications.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- the functions and principles of operation of injection moulding equipment
- the functions and principles of operation of injection moulding machine components, including:
 - material supply systems
 - plastification units
 - dies/tools
 - injection units
- the functions and principles of operation of ancillary equipment integral to the process, including:
 - chillers
 - die heating equipment
 - hopper driers
 - mixing hoppers
 - dehumidifying driers
 - air compressors
 - dosing machines
 - blending and mixing equipment
 - conveyors
- mechanical, hydraulic, pneumatic, electrical and electronic principles that affect machine operation
- the criteria for overall process/equipment readiness for the process or equipment being used
- injection moulding production features and workflow sequences

- how to calculate injection moulding machine size and injection unit capacity to ensure appropriate equipment selection
- characteristics and properties of materials and their behaviour in relation to process conditions
- typical quality standards required at each stage of production
- key variables that may affect product quality and production output, including:
 - variations in raw materials and equipment operation
 - machine conditions
 - production rate
 - product integrity and conformance to minimum acceptable end-user standards
- typical and atypical process and product problems, including early warning signs, possible causes and corrective actions
- methods and materials for purging equipment, and their combinations and applications
- organisational procedures relevant to the work environment and job role, including procedures for the emergency shutdown of equipment
- hazards that may arise in the job or work environment, and:
 - their possible causes
 - potential consequences
 - appropriate risk controls.

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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