



Australian Government

PMBPROD362E Produce polyurethane products using gravity casting

Release: 1

PMBPROD362E Produce polyurethane products using gravity casting

Modification History

Release 1. Unit code and title changed. Application changed. Elements and Performance Criteria changed. Range of Conditions removed. Assessment Requirements changed. Supersedes and is equivalent to PMBPROD362 Produce gravity cast polyurethane products.

Application

This unit describes the skills and knowledge required to operate, adjust and optimise gravity casting equipment to produce polyurethane products.

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

The unit principally refers to the wide range of thermoset urethane chemistry and gravity-cast moulding that makes a wide variety of both rigid and flexible products.

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 – Urethanes

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. Prepare to gravity cast polyurethane materials	1.1 Identify materials, including additives and curatives, from job specifications 1.2 Identify equipment, including handling, control and material preparation equipment from job specifications 1.3 Perform pre-operational checks including checking for and controlling materials and process hazards 1.4 Identify and check availability of safety equipment 1.5 Identify checks and testing processes required for equipment, materials, quality and production management

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	1.6 Identify housekeeping needs and waste management strategies to collect excess, discarded or nonconforming materials to be disposed of, recycled or reprocessed according to workplace procedures
2. Plan gravity casting operations	2.1 Confirm product and process parameters against job specifications 2.2 Ensure environmental controls are valid and in place 2.3 Calculate quantity of material required to produce product of correct shape and physical dimensions from job specifications 2.4 Determine product colour and obtain appropriate agents required from job specifications 2.5 Set production process according to equipment and workplace specifications, and adjust process to optimise output based on selected materials 2.6 Obtain appropriate mould coating and releasing agents required from job specifications
3. Set up and check gravity casting equipment	3.1 Inspect and set up gravity casting equipment according to equipment specifications 3.2 Check time, de-gasser, temperature and allowable adjustments for conformity to documented procedures 3.3 Ensure that mould is secured or adequately restrained to prevent separation of mould and rotational equipment 3.4 Perform test run of production process to ensure output meets job specifications 3.5 Clean work area and ensure, operational sequence and procedures, particularly work health and safety procedures, codes and practices are in place according to workplace procedures 3.6 Identify and check emergency stops, guards and controls
4. Conduct gravity casting operations	4.1 Ensure process is operating according to equipment specifications including operating temperature, time and rotational speed 4.2 Pour materials at appropriate rate per minute, angle and quantity using necessary aids and assistance to ensure pour is completed within required times and distribution requirements and using techniques to prevent air entrapment and aeration 4.3 Follow checking and testing process to assess if output, including thickness, weight and product integrity, meets job specifications and quality standards, and apply strategies to manage nonconforming

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	outputs 4.4 Demould, check and store products according to workplace procedures 4.5 Apply waste management strategies according to workplace procedures 4.6 Clean, adjust and lubricate equipment, according to equipment specifications and workplace procedures
5. Anticipate and solve emergency problems	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.

- Reading skills to interpret job and equipment specifications and workplace procedures.
- Writing and oral communication skills to record and report on process control variances.

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 PMBPROD362 Produce gravity cast polyurethane 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 PMBPROD362E Produce polyurethane products using gravity casting

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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 polyurethane products using gravity casting at least once to meet job specifications.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- function and operating principles of gravity casting equipment, machine components and ancillary equipment
- importance of machine set-up and warm-up for effective processing of materials
- gravity casting manufacturing process and materials demand
- characteristics of materials and their behaviour in relation to process conditions and stages of production
- the criteria for overall process/equipment readiness for the process or equipment being used
- typical quality standards required at each stage of production
- key variables that may affect product quality and production output:
 - operating temperatures
 - speed of cure
 - colour
 - location of pouring basin
 - cycle time
 - use of separating agents
 - product weight
 - product integrity and general conformance to specification
- typical and atypical process and product problems, including early warning signs, possible causes and corrective actions
- the distinguishing characteristics of causes of problems as being either based on the properties of materials or caused by process variables
- organisational procedures relevant to the work environment or job role

- 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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