



Australian Government

PMBTECH506E Analyse the design of products and tools for polymer injection moulding

Release: 1

PMBTECH506E Analyse the design of products and tools for polymer injection moulding

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 PMBTECH506 Analyse the design of product and tools.

Application

This unit describes the skills and knowledge required to analyse product and tool design to inform design features for new production.

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

This unit principally refers to applying production experience and polymer knowledge along with fundamental tooling design parameters to advise on design.

This unit does not apply to non-metallic moulds such as those used for composites or thermoforming.

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

MSMOPS401 Trial a new process or product.

Competency Field

Technical – 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. Identify tool components	1.1 Identify advantages and limitations of common types of tools to assess features against production requirements 1.2 Interpret technical drawings to select tool types, components and systems according to job specifications
2. Identify tool and part features that affect product	2.1 Recognise, and consider as part of selection, common product faults caused by tools

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
quality	2.2 Recommend modifications to tools or materials to mitigate the risk of, or rectify, process control variances resulting from tool faults
3. Identify product features that affect tool design	3.1 Identify product design features in terms of tool design and manufacturing approach required to achieve them 3.2 Identify critical product design features that must be considered to inform optimal selection of manufacturing technology and tool design
4. Analyse tool design	4.1 Assess process that will be followed for design, manufacture and trialling of tools 4.2 Use analysis and balancing tools to ensure optimal tool design for productivity and output quality 4.3 Recommend technical improvements to tool and product design to promote optimal production processes

Foundation Skills

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

- Numeracy skills to collect and analyse data and interpret technical drawings.
- Reading skills to interpret job and equipment specifications and workplace procedures.
- Writing and oral communication skills to recommend tooling and manufacturing technology selections and improvements.

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 PMBTECH506 Analyse the design of product and tools.

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 PMBTECH506E Analyse the design of products and tools for polymer injection moulding

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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:

- analyse the design of products and tools for polymer injection moulding, at least once, to inform design features for new production.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- polymer materials, their additives and the rheological, heat and other effects of processing on the design of tools and components
- function and principles of operation of tool components and systems and ancillary equipment
- impact of product design on tooling design
- impact of tooling design on product
- impact of tool design and material properties on productivity
- types of tool designs required for different product types and their relative suitability
- the technical strengths and weaknesses of common processing and fabrication technologies and their relative suitability for classes of products
- the economic and market features of common processing and fabrication technologies and their impact on the selection of a technology for a product.

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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