



Australian Government

MEM26013 Select and use composite processes or systems appropriate for product

Release: 1

MEM26013 Select and use composite processes or systems appropriate for product

Modification History

Release 1. Supersedes and is equivalent to MEM26013A Select and use composite process or systems appropriate for product

Application

This unit of competency defines the skills and knowledge required for the selection of processes or systems for the redesign of an existing product (e.g. using a different process) or the design of a new product similar to an existing product.

Where the selection of suitable materials is required unit MEM26011 Determine materials and techniques for a composite component or product should also be chosen.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Band: A

Unit Weight: 4

Pre-requisite Unit

MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information

Competency Field

Composites

Elements and Performance Criteria

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
1	Determine process requirements of the product	1.1	Follow standard operating procedures (SOPs)
		1.2	Comply with work health and safety (WHS) requirements at all times
		1.3	Select and use appropriate personal protective equipment

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

(PPE) in accordance with SOPs

- 1.4 Determine physical, chemical and aesthetic characteristics of the product
- 1.5 Determine production volume and delivery schedule
- 1.6 Determine regulatory requirements

2 Select most appropriate process/ system

- 2.1 Identify processes which can deliver requirements of product
- 2.2 Determine the capability of the organisation to use the processes and meet the requirements
- 2.3 Evaluate each process against the requirements
- 2.4 Select most appropriate process
- 2.5 Fabricate a sample using most appropriate process
- 2.6 Conduct/organise for relevant tests
- 2.7 Evaluate test results
- 2.8 Review test results against product and sustainability requirements
- 2.9 Review selected fabrication process and make any required changes to process

3 Use process to make product

- 3.1 Identify and control hazards
- 3.2 Fabricate product using selected process and minimise waste
- 3.3 Review product compared to requirements
- 3.4 Review fabrication process
- 3.5 Identify areas for improvement and take corrective actions

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 3.6 Complete any required documentation/reporting according to SOPs

Foundation Skills

This section describes those required skills (reading, writing, oral communication and numeracy) that are essential to workplace performance in this unit of competency.

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

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Physical characteristics of product include the following:

- size
- shape
- weight
- requiring one/two part mould
- light weight
- high strength
- erosion resistant

Chemical characteristics of product include the following:

- corrosion resistant
- fire retardant
- ultraviolet (UV) resistant

Aesthetic characteristics of product include the following:

- finish (e.g. gloss, buffed and matt)
- colour

Regulatory requirements include one (1) or more of the following:

- dangerous goods
- WHS
- Environmental Protection Agency (EPA)

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Areas for improvement include one (1) or more of the following:

- cost/benefit of different processes
- selecting a process suited to the customer needs
- selecting a process within the organisation capability
- maximising sustainability

Sustainability includes the following:

- survival of the ecology/physical environment
- economic viability
- social sustainability

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM26013A Select and use composite process or systems appropriate for product

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>

Assessment Requirements for MEM26013 Select and use composite processes or systems appropriate for product

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria on at least two (2) occasions and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- identifying and interpreting specifications, formulas/recipes, batch sheets for selecting and using composite processes or systems appropriate for product
- considering all reasonably available processes in selecting and choosing the appropriate processes or systems, including technical, practical, cost and sustainability criteria
- fabricating a sample and conducting/organising relevant test and evaluating the test results and making any required changes, as appropriate
- fabricating the final product using selected process and minimising waste in accordance with specifications
- identifying areas for improvement and taking appropriate action
- completing all documentation and reports, including items requiring further action, in accordance with SOPs.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- safe work practices and procedures and use of personal protective equipment (PPE)
- current state/territory work health and safety (WHS) legislation, standards and codes of practice relevant to using composite processes or systems appropriate for product
- cost analysis for each process to select best process
- technical standards/suitability
- mechanical stresses
- life cycle assessment for each process
- ease of manufacture
- testing criteria
- failure modes effects analysis (FMEA)
- typical applications of each major type of process, strengths and weaknesses
- grid analysis

- hazards and the hierarchy of hazard control measures
- product characteristics design requirements.

Assessment Conditions

- Assessors must:
 - have vocational competency in selecting and using composite process or systems appropriate for product at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015* or its replacement and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires
- Where possible assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

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