



Australian Government

MEM26008 Select and use resin systems appropriate for product

Release: 1

MEM26008 Select and use resin systems appropriate for product

Modification History

Release 1. Supersedes and is equivalent to MEM26008A Select and use resin systems appropriate for product

Application

This unit of competency defines the skills and knowledge required to select and use appropriate resins and resin systems. It includes the chemistry of resins.

Where the selection of a suitable reinforcing system is required unit MEM26007 Select and use reinforcing appropriate for product should also be selected.

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 product requirements	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 (PPE) in accordance with SOPs
		1.4	Determine requirements of resin system from

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
		specifications, job sheets or work instructions and customer requests	
		1.5	Select appropriate process to be used to fabricate product
2	Select most appropriate resin/resin system for job	2.1	Determine performance outcomes required from resin
		2.2	Interpret specifications of available resins
		2.3	Compare required properties with specifications of available resin systems
		2.4	Interpret safety data sheets (SDS) for possible resin systems
		2.5	Select most appropriate resin
3	Evaluate selected resin system	3.1	Identify current conditions impacting on resin chemistry
		3.2	Identify adjustments which can be made to meet current conditions
		3.3	Make allowable adjustments and monitor result
		3.4	Fabricate a sample using the selected resin system and nominated reinforcing
		3.5	Conduct/organise for relevant tests
		3.6	Evaluate test results against product requirements
		3.7	Review fabrication process and make any required changes to resin system or process
4	Fabricate product	4.1	Identify and control hazards
		4.2	Prepare nominated reinforcing, including cutting to size/shape and any pre-treatment, as required
		4.3	Lay reinforcing in correct direction, including fibre orientation and fibre pre-forming, as appropriate

Elements describe the essential outcomes.

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

- 4.4 Make any appropriate adjustments to the resin system recipe
- 4.5 Mix selected resin system, as required
- 4.6 Fabricate product using selected process and minimise waste
- 4.7 Review product compared to requirements
- 4.8 Review reinforcing selection and fabrication process
- 4.9 Identify areas for improvement and take appropriate actions
- 4.10 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.

Requirements of resin system include the following:

- strength
- flexibility/rigidity
- surface finish and colour
- shrinkage
- chemical/ultraviolet (UV)/environmental resistance
- operating temperature and heat distortion temperature
- recyclability

Most appropriate resin

- compliance with product requirements

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.

includes the following:

- greatest ease of use in manufacture
- best financial return
- greatest sustainability contribution

Resin system adjustments include one (1) or more of the following:

- temperature
- humidity
- required cure time

Adjustments may only be made within the allowable limits of the system being used

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

- cost/benefit of different resin systems
- selecting a resin system suited to the fabrication process

Sustainability includes the following:

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

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM26008A Select and use resin 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 MEM26008 Select and use resin 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, safety data sheets (SDS), formulas/recipes, batch sheets, product drawings, customer requests for selecting and using resin systems appropriate for product
- considering all reasonably available resin systems when selecting and choosing the appropriate product
- 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 as per 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 selecting and using resin systems appropriate for product
- physical and chemical properties of resins
- resin types, cost and source
- catalyst types and systems (e.g. polyester and vinyl ester)
- hardener types (e.g. epoxy and phenolic)
- fillers and thickeners (e.g. mineral extenders, milled and cut fibre)
- safety data sheets (SDS) appropriate to the resin system selected
- catalyst hazards (e.g. self-accelerating decomposition temperature (SADTs)) and control measures associated with selecting and using resin systems appropriate for product, including housekeeping.

Assessment Conditions

- Assessors must:
 - have vocational competency in selecting and using resin 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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