



Australian Government

MEM25001 Apply fibre-reinforced materials

Release: 1

MEM25001 Apply fibre-reinforced materials

Modification History

Release 1. Supersedes and is equivalent to MEM25001B Apply fibre-reinforced materials

Application

This unit of competency defines the skills and knowledge required to apply and form/shape fibre-reinforced materials using manual and mechanical methods in marine vessel and aircraft construction applications.

It applies to application and forming operations conducted within a mould or over a former assembly and tasks include lay-up practices and sheathing applications using a variety of glass reinforcements and other fibres.

Where forming and integration work and vacuum bagging techniques are required unit MEM25002 Form and integrate fibre-reinforced structures should also be selected.

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

Band: A

Unit Weight: 2

Pre-requisite Unit

MEM11011	Undertake manual handling
MEM13003	Work safely with industrial chemicals and materials
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information
MEM18001	Use hand tools
MEM18002	Use power tools/hand held operations

Competency Field

Marine craft construction

Elements and Performance Criteria

Elements describe the essential outcomes.

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

1	Determine job requirements	1.1	Follow standard operating procedures (SOPs)
		1.2	Comply with work health and safety (WHS) requirements at all times
		1.3	Use appropriate personal protective equipment (PPE) in accordance with SOPs
		1.4	Identify job requirements from specifications, job sheets or work instructions
2	Prepare for application/ forming operations	2.1	Select appropriate tools and equipment according to organisational requirements and instructions
		2.2	Set up and adjust equipment ready for operation
		2.3	Identify and select materials according to the required job specifications
		2.4	Make allowances for thickness to specifications
3	Apply reinforced materials	3.1	Position components ready for reinforcement operation
		3.2	Start up equipment, shut down and operate according to SOPs
4	Form and shape reinforcement materials	4.1	Roll/shape materials to specified thicknesses and/or finishes
		4.2	Laminate materials according to specifications
		4.3	Check final application and shape for compliance to specifications and adjust, as necessary

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.

Applications include one (1) or more of the following:

- hull
- deck
- superstructures
- bulkhead and partitions
- transverse and longitudinal frame members
- engine beds
- tanks

Materials include one (1) or more of the following:

- variety of glass reinforcements and other fibres
- types of laminating resins
- stiffening materials, including:
 - foams
 - core mat

Tools and equipment include one (1) or more of the following:

- brushes and rollers
- metal rollers
- gel coat
- resin depositors

Unit Mapping Information

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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 MEM25001 Apply fibre-reinforced materials

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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
- selecting equipment for the application/forming job and setting up and operating/adjusting equipment for correct operation
- selecting materials to suit different operations and making allowances to suit conditions and specifications
- positioning components and applying reinforced materials and rolling/shaping material smoothing irregularities and laminating materials ensuring compliance with specifications and adjusting, as required.

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)
- tools and equipment for application/forming operations
- procedures for setting up and adjusting equipment
- terminology and information relevant to standard work instructions
- applicable codes and regulations
- different chemicals and materials and their properties, including mixing ratios
- importance and relevance of thickness allowances
- techniques for positioning components
- safety requirements and start-up/shutdown/operating procedures
- methods for rolling and shaping and problems associated with rolling and shaping and methods for rectifying
- lamination sequence
- methods of checking final application and form.

Assessment Conditions

- Assessors must:

- have vocational competency in applying fibre-reinforced materials 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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