



Australian Government

PMBPROD247E Create composite laminates using hand lay-up techniques

Release: 1

PMBPROD247E Create composite laminates using hand lay-up techniques

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 PMBPROD247 Hand lay up composites.

Application

This unit describes the applied skills and knowledge required to create polymer-matrix laminates using manual hand lay-up techniques.

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

The unit principally refers to the introductory level of competency required for the application of composites technology.

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 – Composites

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. Check work requirements	1.1 Identify requirements from job specifications 1.2 Perform housekeeping tasks to prepare for work to be undertaken 1.3 Perform pre-operational checks including checking for and acting on hazards
2. Set up mould and materials	2.1 Set up mould ready for production 2.2 Ensure materials are available in form and quantities required 2.3 Ensure safety equipment is available and fit for use

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
3. Lay-up composites by hand	3.1 Apply materials to mould according to specifications 3.2 Ensure output meets job specifications and quality standards 3.3 Work efficiently to minimise scrap and trim 3.4 Clean equipment and work area according to equipment specifications and workplace procedures
4. Respond to process control variances	4.1 Recognise and log process control variances and their causes 4.2 Determine, prioritise and implement remedial and preventative actions based on identified issues and causes 4.3 Maintain records and logbooks

Foundation Skills

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

- Numeracy skills to interpret technical information.
- Reading skills to interpret specifications and workplace procedures.
- Writing and oral communication skills to record and report on composite laminate operations.

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 PMBPROD247 Hand lay up composites.

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 PMBPROD247E Create composite laminates using hand lay-up techniques

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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:

- create composite laminates using hand lay-up techniques at least once to meet job specifications.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- principles of hand lay-up techniques in relation to the production of composites laminates
- types of composite laminates, including:
 - gel coats
 - resins
 - fibre reinforcements
- types of materials, tools and equipment to meet job specifications
- set-up procedures for, and indicators of, mould readiness for production
- methods of manual application of composite materials
- production workflow sequences and materials demand
- key variables that may affect product quality and production output, including:
 - the impact of resin-to-fibre ratios on product outputs
 - mould conditions
 - ambient temperature
 - air flow and ventilation rate
 - viscosity of resin
 - age of resin mix and pot-life of mix
- typical process and product problems, as listed below, including early warning signs, possible causes and corrective actions:
 - cracks, dents or imperfections in the mould
 - incorrect resin ratios
 - contamination of materials
 - shifting of fibres before the resin is laid
 - stacking of fibre and resin sequence problems

- product problems including voids, poor surface finish, colour contamination and release from mould damage
- organisational procedures relevant to the work environment job or 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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