



Australian Government

PMBPROD347 Produce composites using hand lamination

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to PMBPROD347B Produce composites using hand lamination

Application

This unit of competency covers the skills and knowledge required to operate and adjust hand lamination processes to produce complex composite product. It applies to products which are 'complex' due to their shape (e.g. acute angle corners), technical specification (e.g. high strength/rigidity/low weight) or the conditions under which the work must be undertaken (e.g. poor access, hot/cold environment).

This unit of competency applies to experienced operators who are required to set up and prepare equipment, tools and materials, monitor equipment operation, make adjustments to remedy faults and non-conformity and solve problems within area of responsibility.

This unit of competency applies to an experienced operator demonstrating theoretical and technical knowledge and well developed skills in situations that require some discretion and judgement. The experienced operator may work alone or as a member of a team or group and will work in liaison with other shift team members, team leader and supervisor, as appropriate.

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

Pre-requisite Unit

PMBPROD247 Hand lay up composites

Competency Field

Production

Unit Sector

Not applicable

Elements and Performance Criteria

Elements describe the essential outcomes.

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

- 1 **Plan own work requirements**
 - 1.1 Identify most appropriate equipment and materials to be used for required product and upstream and downstream operations from production plan or request
 - 1.2 Identify materials required, including additives
 - 1.3 Implement measures to control identified hazards in accordance with procedures and duty of care
 - 1.4 Identify requirements for materials, quality, production and equipment checks

- 2 **Set up mould and materials to procedures**
 - 2.1 Check materials, resins and fibres are correct and prepared to specifications
 - 2.2 Inspect and prepare mould as required
 - 2.3 Prepare jigs, fixtures and tools as required
 - 2.4 Take appropriate action for non-conforming items
 - 2.5 Set up date, batch and materials markings to specifications, as required
 - 2.6 Complete other checks

- 3 **Hand lay up composites to procedures**
 - 3.1 Apply materials to the mould to specification
 - 3.2 Monitor product/process quality
 - 3.3 Make adjustments to remedy faults and non-conformity as required
 - 3.4 Adjust work to minimise scrap and waste

- 4 **Anticipate and solve problems**
 - 4.1 Recognise a problem or a potential problem
 - 4.2 Determine problems needing priority action
 - 4.3 Refer problems outside area of responsibility to appropriate person, with possible causes
 - 4.4 Seek information and assistance as required to solve problems.

- 4.5 Solve problems within area of responsibility
- 4.6 Follow through items initiated until final resolution has occurred

Foundation Skills

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

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.

Regulatory framework The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used.

Applicable legislation, regulations, standards and codes of practice include:

- health, safety and environmental (HSE) legislation, regulations and codes of practice relevant to the workplace, manual handling and hazardous materials
- Australian/international standards relevant to the materials being used and products being made
- any relevant licence and certification requirements.

All operations to which this unit applies are subject to stringent HSE requirements, which may be imposed through state/territory or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and such requirements the legislative requirements take precedence.

Procedures All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, and include one or any combination of:

- emergency procedures
- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant.

Tools and equipment

Tools and equipment include:

- open moulds for composite products
- hand mixing equipment and stirrers
- knives and cutters to trim fibres
- hand application tools, such as rollers and brushes.

Additional tools and equipment will be selected as required from:

- hand tools
- hoists/lifting equipment not requiring any special permits or licences
- manual handling aids, such as hand carts and trolleys
- relevant personal protective equipment (PPE).

Hazards

Hazards must be identified and controlled. Identifying hazards requires consideration of:

- glass and other fibre hazards (inhalation and skin penetration)
- hazardous products and materials
- cutting equipment
- sharp edges, swarf and scrap
- protrusions or obstructions
- slippery surfaces, spills or leaks
- rotational equipment or vibration
- smoke, dust, vapours or other atmospheric hazards
- electricity
- gas
- gases and liquids under pressure
- structural hazards
- equipment failures
- machinery, equipment and product mass
- other hazards that might arise.

Problems Non-routine problems must be resolved by applying operational knowledge to develop new solutions, either individually or in collaboration with relevant experts, to:

- determine problems needing action
- determine possible fault causes
- develop solutions to problems which do not have a known solution
- follow through items initiated until final resolution has occurred
- report problems outside area of responsibility to designated person.

Non-routine problems are unexpected problems or variations of previous problems and include one or more of:

- unstable process variables
- sub-optimal operation
- variations in feed rates
- variations in quality
- emergency situations
- mould release problems
- warping or cracking after moulding
- voids due to resin drainage
- intermittent faults.

Operational knowledge includes one or more of:

- procedures
- training
- technical information, such as journals and engineering specifications
- remembered experience
- relevant knowledge obtained from appropriate people.

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=932aacef-7947-4c80-acc6-593719fe4090>