



**Australian Government**

# **PMBTECH507 Develop fibre-composite products using cored-laminate techniques**

**Release: 1**

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## **Modification History**

Release 1. Supersedes and is equivalent to PMBTECH507B Develop fibre composite products using cored-laminate techniques

## **Application**

This unit of competency covers the skills and knowledge required to develop designs for 'sandwich type' fibre-composite laminates.

This unit of competency applies to the design of new sandwich products using the range of materials and techniques which are standard within a particular enterprise

This unit of competency applies to experienced technicians or those in similar roles who are required to apply in-depth knowledge of materials, process, equipment and problem solving in order to determine appropriate materials and processes to meet design objectives; determine appropriate equipment and process settings and adjustments; develop drawings of new product; and solve technical problems associated with the design and manufacturing procedures.

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

## **Pre-requisite Unit**

MEM09003B Prepare basic engineering drawing

## **Competency Field**

Technical

## **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 | <b>Confirm product specification</b>                   | 1.1 | Confirm physical/structural properties required of product                                                              |
|   |                                                        | 1.2 | Confirm other requirements of product                                                                                   |
|   |                                                        | 1.3 | Identify relevant regulations/standards/codes of practice which may be applicable                                       |
|   |                                                        | 1.4 | Draw/use hand sketch to confirm product size and shape                                                                  |
| 2 | <b>Identify technical requirements</b>                 | 2.1 | Determine the laminate properties appropriate for the job                                                               |
|   |                                                        | 2.2 | Select the appropriate core material(s)                                                                                 |
|   |                                                        | 2.3 | Select the appropriate resin, matrix and other materials                                                                |
|   |                                                        | 2.4 | Determine joints, attachment points and other special features required                                                 |
|   |                                                        | 2.5 | Determine lay-up technique to be used                                                                                   |
| 3 | <b>Develop specification for manufacturing product</b> | 3.1 | Develop technical/engineering drawing of new product to company required standards                                      |
|   |                                                        | 3.2 | Develop material list/specification for new product                                                                     |
|   |                                                        | 3.3 | Develop manufacturing procedures/specifications for new product                                                         |
|   |                                                        | 3.4 | Complete required documentation                                                                                         |
| 4 | <b>Make trial samples, as required</b>                 | 4.1 | Liaise with production and other relevant people to ensure specifications/procedures are clear, adequate and understood |
|   |                                                        | 4.2 | Provide technical expertise to the production process as required to facilitate manufacture                             |
|   |                                                        | 4.3 | Test samples for function and quality                                                                                   |

- |   |                                      |                                                                                          |
|---|--------------------------------------|------------------------------------------------------------------------------------------|
|   | 4.4                                  | Modify designs where necessary to meet manufacturing and other requirements              |
| 5 | <b>Anticipate and solve problems</b> |                                                                                          |
|   | 5.1                                  | Recognise a problem or a potential problem                                               |
|   | 5.2                                  | Determine possible cause                                                                 |
|   | 5.3                                  | Refer problems outside area of responsibility to appropriate person, with possible cause |
|   | 5.4                                  | Seek information and assistance as required, to solve problems                           |
|   | 5.5                                  | Solve problems within area of responsibility                                             |
|   | 5.6                                  | 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, materials and processes being used and products being made
- 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:

- test procedures
- technical specifications
- technical drawings
- 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:

- manual and/or computer-aided drawing tools
- measuring tools.

**Hazards**

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

- hazardous products and materials
- fibres (airborne and handled)
- other hazards that might arise.

## Unit Mapping Information

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## Links

MSA Training Package Implementation Guides - <http://mskills.org.au/training-packages/info/>