



Australian Government

PMBPROD293E Create composite laminates using vacuum-assisted closed-moulding processes

Release: 1

PMBPROD293E Create composite laminates using vacuum-assisted closed-moulding processes

Modification History

Release 1. Unit code changed. Application changed. Elements and Performance Criteria changed. Range of Conditions removed. Assessment Requirements changed. Supersedes and is equivalent to PMBPROD293 Operate vacuum bagging equipment.

Application

This unit describes the skills and knowledge required to create polymer-matrix laminates or pre-moulding forms with vacuum-assisted closed-moulding equipment and materials.

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

This unit principally refers to the general use of process equipment in which liquid resin is applied to a dry lay-up of the reinforcement fabric or mat.

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 work requirements from production plan or request, or job specifications 1.2 Check product, materials and equipment meet requirements for job 1.3 Recognise mould-tooling design requirements and compare with typical requirements 1.4 Identify and perform housekeeping tasks in preparation for work to be undertaken 1.5 Perform pre-operational checks including checking for and acting

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	on hazards
2. Check process set-up	2.1 Check safety equipment is in position and working 2.2 Check moulds, vacuum ports, closures and fittings, and vacuum bag or counter-mould, for operational readiness 2.3 Check moulds for cracks, chips, marks and cleanliness in preparation for use 2.4 Check materials, including fibre preforms, resins, additives and release agents, are correct against job specifications 2.5 Complete pre-startup checks for air leaks, vacuum pump operation, and liquid resin delivery tubes in readiness for operation
3. Operate equipment	3.1 Start equipment safely and correctly when required 3.2 Check process is operating according to equipment specifications in relation to resin flow and exotherm to meet job requirements 3.3 Monitor and maintain supply of materials to support operation of equipment 3.4 Accurately complete logs and records
4. Respond to process variations in accordance with procedures	4.1 Recognise and log process control variances and their issues 4.2 Determine, prioritise and implement remedial and preventative actions based on identified issues and causes 4.3 Accurately 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 and equipment readings.
- Reading skills to interpret specifications and workplace procedures.
- Writing and oral communication skills to record and report on vacuum-assisted closed-moulding equipment 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 PMBPROD293 Operate vacuum bagging equipment.

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 PMBPROD293E Create composite laminates using vacuum-assisted closed-moulding processes

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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 has demonstrated the ability to:

- create composites laminates using vacuum-assisted closed-moulding processes at least once to meet work requirements, and including preparation of workplace production moulds, fibre preforms, prepregs, resins, additives and release agents to process specifications.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- functions of vacuum-assisted closed-moulding equipment
- principles of operation of the equipment in use at the workplace
- polymer thermosetting resins and reinforcements typically in use
- composite laminate production workflow sequences and materials demand
- the criteria for overall process or equipment readiness for the process or equipment being used
- key variables that may impact product quality or production output, including:
 - vacuum-assisted closed-moulding equipment conditions
 - production rate
 - curing time and conditions
- typical quality standards at each stage of production
- typical process and product problems, including early warning signs, possible causes and corrective actions
- organisational procedures relevant to the work environment or job role, including procedures for the emergency shutdown of equipment
- 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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