



Australian Government

PMBPROD392E Produce thermoset composites using pultrusion

Release: 1

PMBPROD392E Produce thermoset composites using pultrusion

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 PMBPROD392 Produce composites using pultrusion.

Application

This unit covers the skills and knowledge required to operate, control and optimise pultrusion production-line machinery to produce finished product.

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

The unit principally refers to a continuous production operation similar to a thermoplastic extrusion line, where the operator must apply knowledge of the materials science and skills from learning and experience to set up and operate the line to achieve consistent, optimal productivity.

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 – Thermoset Composites Pultrusion

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. Plan work requirements	1.1 Identify and check materials requirements, including additives, from job specifications 1.2 Identify equipment and processes required for production and upstream and downstream operations from job specifications 1.3 Perform pre-operational checks including checking for and controlling hazards 1.4 Identify checks and testing processes required for equipment, materials, quality and production management to meet job specifications 1.5 Identify waste management strategies to minimise scrap and trim

Elements Elements describe the essential outcomes.	Performance Criteria Performance criteria describe the performance needed to demonstrate achievement of the element.
	according to workplace procedures
2. Perform pre-production tasks	2.1 Verify equipment requirements against job specifications 2.2 Set production process according to equipment and workplace specifications, and adjust process to optimise output based on selected materials 2.3 Set up and adjust equipment and production line settings according to equipment and job specifications 2.4 Verify materials, resins and fibres are correct against job specifications 2.5 Set up date, batch and materials markings according to workplace procedures 2.6 Undertake other pre-startup checks according to equipment specifications and workplace procedures
3. Operate and make adjustments to control pultrusion process	3.1 Start up and operate pultrusion process, and make adjustments to settings to meet job specifications 3.2 Ensure process is operating according to equipment specifications and workplace procedures 3.3 Follow checking and testing processes to confirm if output meets job specifications and quality standards, and apply strategies to manage nonconforming outputs 3.4 Maintain continuity of process to support production 3.5 Work efficiently to minimise scrap and trim according to workplace procedures 3.6 Clean, adjust and lubricate equipment according to equipment instructions
4. Shut down machinery	4.1 Determine type of shutdown and process to be followed from equipment instructions and workplace procedures 4.2 Shut down equipment according to equipment instructions and workplace procedures 4.3 Clean equipment efficiently and effectively, using appropriate methods and materials according to equipment instructions 4.4 Put guards, locks and notices in place to prevent inadvertent startup 4.5 Accurately complete workplace shutdown documentation 4.6 Clean and clear work area after shutdown in readiness for next

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	startup
5. Anticipate and solve process control variances	5.1 Recognise exiting or potential process control variances and their causes 5.2 Determine, prioritise and implement remedial and preventative actions based on identified issues and causes 5.3 Monitor process control variances and corrective actions taken until resolved 5.4 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 monitor equipment readings and assess production outputs.
- Reading skills to interpret job and equipment specifications and workplace procedures.
- Writing and oral communication skills to record and report on composites production, shutdown and process control variances.

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 PMBPROD392 Produce composites using pultrusion.

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 PMBPROD392E Produce thermoset composites using pultrusion

Modification History

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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:

- produce thermoset composites using pultrusion at least once to meet job specifications.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- the function of pultrusion equipment
- the principles of operation of pultrusion equipment
- pultrusion manufacturing process and materials demand
- types of composites resin and glass fibre materials being used and their characteristics
- characteristics of composites behaviour in the process
- mechanical, hydraulic, pneumatic, electrical and electronic principles that affect machine operation
- the criteria for overall process/equipment readiness for the process or equipment being used
- typical quality standards required at each stage of production
- key variables that may affect product quality and production output, including:
 - operating temperatures
 - speed
 - colour and uniformity
 - cycle time
 - output rate
 - product weight
 - product integrity and general conformance to specification
- typical and atypical process and product problems, including early warning signs, possible causes and corrective actions
- the distinguishing characteristics of causes of problems as being either based on the properties of materials or caused by process variables
- organisational procedures relevant to the work environment or job 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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