Australian Government

PMBPROD391 Produce composites using resin infusion

Release: 1

PMBPROD391 Produce composites using resin infusion

Modification History

Release 1. Supersedes and is equivalent to PMBPROD391B Produce composites using resin infusion

Application

This unit of competency covers the skills and knowledge required to operate and adjust resin infusion processes to produce product.

This competency applies to experienced operators who are required to start up and shut down resin infusion equipment, monitor equipment operation, establish a stable process, 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 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

PMBPROD291 Operate resin infusion moulding equipment

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 the most appropriate equipment to be used for production and upstream and downstream operations from production plan or request

		1.2	Identify and check materials required, including additives
		1.3	Implement measures to control hazards in line with procedures and duty of care
		1.4	Identify requirements for materials, quality, production and equipment checks
2	**Start resin infusion moulding process to procedures**	2.1	Identify process settings for required product
		2.2	Set process to required settings
		2.3	Check materials are correct
		2.4	Take appropriate action for non-conforming materials
		2.5	Set up date, batch and materials markings to specifications, as required
		2.6	Complete pre-start checks
		2.7	Start up resin infusion moulding process
3	**Operate and make adjustments to the resin infusion process to procedures**	3.1	Operate resin infusion equipment, noting key variables
		3.2	Monitor controls/displays/terminals for production and process data
		3.3	Take samples as required and identify product out of specification
		3.4	Monitor product/process quality
		3.5	Make adjustments to remedy faults and non-conformity to standard as required
		3.6	Establish a stable resin infusion process
		3.7	Adjust process to minimise scrap and trim
		3.8	Clean, adjust and check equipment damage as required
4	**Shut down**	4.1	Determine type of shutdown

	machine to procedures	4.2	Select appropriate cleaning method
		4.3	Clean efficiently and adequately as required
		4.4	Leave machine in appropriate condition and with appropriate locks, tags or notices
		4.5	Complete relevant documentation
		4.6	Ensure area is clean and clear after the shutdown, in readiness for the next start-up
5	**Anticipate and solve problems**	5.1	Recognise a problem or a potential problem
		5.2	Determine problems needing priority action
		5.3	Refer problems outside area of responsibility to appropriate person, with possible causes
		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, 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:

- moulds
- vacuum bags
- infusion lines
- vacuum pumps and fittings eg hoses and couplings
- programmable logic controllers (PLC) if fitted
- hand tools used in the this process, e.g. dispensing equipment.

Additional tools and equipment will be selected as required from:

- 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:

- fibres, airborne and handled
- hazardous products and materials
- 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, 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:

- variations in quality
- emergency situations
- mould release problems
- stoppage of resin flow
- excess resin
- warping or cracking after moulding
- variations in vacuum
- variations affecting cure rate

- 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