Australian Government

PMBPROD355 Make pattern/plug for composites moulds

Release: 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

PMBPROD355 Make pattern/plug for composites moulds

Modification History

Release 1. Supersedes and is equivalent to PMBPROD355B Make pattern/plug for composites moulds

Application

This unit of competency covers the skills and knowledge required to plan and make a plug/pattern from which composite moulds can be made.

This unit of competency applies to experienced operators who are required to convert the specification or design into a plan for the tooling and mould, construct the plug/pattern, 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

MEM09002B Interpret technical drawing

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 equipment and processes to be used for production process and upstream and downstream operations from production plan or request
		1.2	Identify and check materials required, including additives and regrind, and their amounts or percentages
		1.3	Implement measures to control identified hazards in line with procedures and duty of care
		1.4	Identify requirements for materials, quality, and production and equipment checks
2	**Plan and set up plug/pattern construction to procedures**	2.1	Produce a plan for the plug/pattern according to requirements
		2.2	Plan all steps of the plug/pattern construction
		2.3	Identify check points for measurements and tests
		2.4	Identify and locate a work area, tools, materials and equipment for construction
		2.5	Complete pre-start checks
3	**Construct the plug/pattern to procedures**	3.1	Start plug/pattern construction process, noting key variables
		3.2	Take samples as required and identify product out-of-specification
		3.3	Monitor plug/pattern conformity to requirements
		3.4	Make adjustments to remedy faults and non-conformity as required
		3.5	Complete construction process
		3.6	Treat, prepare and repair the surface of the plug/pattern as necessary

	3.7	Adjust process to minimise scrap and trim
	3.8	Clean and adjust equipment as required
4 **Respond to 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:

- hand tools
- power tools

- hand mixing equipment and stirrers
- hand application tools (e.g. rollers, trowels, brushes and filleting tools)
- ancillary equipment that is integral to the process.

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:

- weight, shape, volume of materials to be handled
- hazardous products and materials
- flammability
- rotational equipment or vibration
- sharp edges, protrusions or obstructions
- slippery surfaces, spills or leaks
- smoke, dust, vapours or other atmospheric hazards
- high temperatures
- 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:

- emergency situations

- release agents failure
- mould release failure
- warping or cracking after moulding
- structural strength, rigidity and stability of the tooling
- dimensional accuracy of the tooling
- allowances in the design for shrinkage, deformations and alterations in the process from tooling to mould to finished composite product
- 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

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