



**Australian Government**

# **PMB30107 Certificate III in Polymer Processing**

**Release 2**

## **PMB30107 Certificate III in Polymer Processing**

### **Modification History**

Release 2 - Addition of five new electives for rubber/tyre sector in Group A. Imported units updated to current version. Equivalent.

Release 1 - Initial release.

## Description

### Job roles/employment outcomes

The Certificate III in Polymer Processing is intended for advanced operators who use production equipment to directly produce products. They would undertake more advanced operations, typically including start-up and shutdown in accordance with the operating procedures, and would apply their knowledge to anticipate problems. They would be expected to solve a range of foreseen and unforeseen problems, using product and process knowledge to develop solutions to problems which do not have a known solution, or a solution recorded in the procedures.

Certificate III also contains units of competency which are the beginning of the polymer technician stream and which contribute to a deeper knowledge of polymers and processes.

For people working in the industry in production support roles, MSA30107 Certificate III in Process Manufacturing would be appropriate. This Certificate is available in MSA07 Manufacturing Training Package. The relevant MSA units of competency for this Certificate are available as electives in PMB07.

### Application

This industry manufactures a wide range of polymer products and components ranging from consumer products to components to be included in other commercial, industrial or consumer products. Much of it is long runs of standard products, but equally it may be short runs/one offs of specialised products. It uses a wide range of natural and synthetic polymers covering thermoplastics as well as thermosetting polymers.

The products from this industry may be components in automobiles, aeroplanes and marine craft as well as domestic appliances and industrial and commercial plant and equipment. It may also be electrical or data cabling. They may equally be consumer products such as paint brushes, tooth brushes, lunch boxes or carry bags.

People with this qualification may be expected to operate and problem solve production equipment and perform a range of support functions

Training programs for this qualification are suitable to be undertaken as part of a formal training contract with an employer under an Australian Traineeship or Apprenticeship arrangement.

### Pathways into the qualification

This qualification may be accessed by direct entry, or entry may also be gained through PMB20107 Certificate II in Polymer Processing.

Units of competency contained within this qualification may be common with other manufacturing qualifications and credit should be granted towards this qualification where competency has already been achieved. Credit should also be granted towards this qualification where competency has been achieved in units of competency contained within relevant skill sets.

The units of competency in this qualification reflect competencies which are practiced within the industry and recognition of prior learning (RPL) should be granted where there is sufficient evidence of competency from work-based experience.

**Pathways from the qualification**

Further qualification pathways from this qualification include PMB40107 Certificate IV in Polymer Technology

**Additional qualification advice**

MSA31108 Certificate III in Competitive Manufacturing and MSA30107 Certificate III in Process Manufacturing are available for those who need a more generalist qualification covering the application of good manufacturing practice and lean principles.

**Licensing considerations**

There are no specific licences that relate to this qualification. However, units of competency in this qualification may provide the underpinning knowledge and skills required for various licences. Local regulations should be checked for details.

**Pathways Information**

Not applicable.

**Licensing/Regulatory Information**

Not applicable.

**Entry Requirements**

Not applicable.

## Employability Skills Summary

<b>EMPLOYABILITY SKILLS QUALIFICATION SUMMARY</b>	
<b>Employability Skill</b>	<b>Industry/enterprise requirements for this qualification include:</b>
Communication	<ul style="list-style-type: none"> <li>• complete logs and reports</li> <li>• use technical information and manufacturer information</li> <li>• collect, analyse and organise information</li> <li>• communicate ideas and information</li> <li>• use workplace documentation effectively</li> <li>• maintain workplace records</li> </ul>
Teamwork	<ul style="list-style-type: none"> <li>• identify and describe own role and role of others</li> <li>• work within a team</li> <li>• resolve conflicts between team members</li> <li>• apply teamwork strategies</li> </ul>
Problem solving	<ul style="list-style-type: none"> <li>• recognise a problem or a potential problem</li> <li>• determine problems needing priority action</li> <li>• refer problems outside area of responsibility to appropriate person, with possible causes</li> <li>• seek information and assistance, as required, to solve problems</li> <li>• solve problems within area of responsibility</li> <li>• follow through items initiated until final resolution has occurred</li> <li>• identify and isolate faults in equipment</li> <li>• use a range of formal problem-solving techniques</li> </ul>
Initiative and enterprise	<ul style="list-style-type: none"> <li>• identify the most appropriate equipment</li> <li>• make adjustments to improve equipment performance</li> <li>• anticipate the impact of the process on the product</li> <li>• determine problems needing action</li> <li>• recommend required action</li> <li>• report problems outside area of responsibility</li> <li>• distinguish between causes of faults</li> </ul>
Planning and organising	<ul style="list-style-type: none"> <li>• plan own work requirements</li> <li>• plan scope of equipment checks</li> <li>• plan and organise activities</li> <li>• identify tasks to achieve team goals</li> <li>• organise allocation of tasks</li> <li>• monitor completion of allocated tasks</li> <li>• develop and adjust a production schedule</li> </ul>
Self-management	<ul style="list-style-type: none"> <li>• plan own work requirements from production requests</li> <li>• operate within appropriate time constraints and work standards</li> </ul>

<b>EMPLOYABILITY SKILLS QUALIFICATION SUMMARY</b>	
	<ul style="list-style-type: none"> <li>• select and use appropriate equipment, materials, processes and procedures</li> <li>• plan to ensure effective production</li> <li>• apply workplace procedures</li> <li>• identify, document and monitor resource requirements</li> <li>• recognise limitations and seek timely advice</li> </ul>
Learning	<ul style="list-style-type: none"> <li>• ask questions to gain information</li> <li>• identify sources of information to expand knowledge and understanding</li> <li>• participate in improvement procedures</li> <li>• participate in development of continuous improvement strategies</li> </ul>
Technology	<ul style="list-style-type: none"> <li>• operate and adjust processes</li> <li>• start up and shut down equipment</li> <li>• set up equipment</li> <li>• monitor product/process quality</li> <li>• maintain function and operating principles of equipment and machine components</li> <li>• maintain workplace records</li> </ul>

## Packaging Rules

### Packaging Rules

To be awarded the Certificate III in Polymer Processing competency must be achieved in **twenty one (21)** units of competency.

- **four (4)** core units of competency
- **seventeen (17)** elective units of competency, as specified below.

**Note:** Where prerequisite units apply, these must be considered in the total number of units chosen. Please refer to individual units for details.

### Core units of competency

Unit code	Unit title	Prerequisites
MSS402051A	Apply quality standards	
MSAENV272B	Participate in environmentally sustainable	

Unit code	Unit title	Prerequisites
	work practices	
MSAPMOHS200A	Work safely	
MSAPMSUP210A	Process and record information	

### Elective units of competency

Select **seventeen (17)** units of competency, as specified below:

- a minimum of **four (4)** units from Group A
- a minimum of **one (1)** unit from Group B
- the remainder of units may be chosen from Groups A, B and C, to bring the total number of electives to **seventeen (17)**.

**Note:** Up to **six (6)** of the elective units of competency can be chosen from other qualifications in this Training Package, other endorsed Training Packages and accredited courses, as specified in Groups B and C.

### Group A

Unit code	Unit title	Prerequisites
MEM09002B	Interpret technical drawing	
MEM09003B	Prepare basic engineering drawing	*
MSAPMOPS363A	Organise on site work	
PMBPREP301C	Set up and prepare for production	
PMBPREP303C	Set up equipment for continuous operation	
PMBPREP304C	Set a die	
PMBPREP305B	Change extrusion die and setup	
PMBPROD300B	Produce products	
PMBPROD301C	Draw wire	
PMBPROD302C	Bunch and strand wire	
PMBPROD303C	Lay up and tape cables	

Unit code	Unit title	Prerequisites
PMBPROD304C	Wind products onto drums	
PMBPROD305C	Colour optical fibre	
PMBPROD306B	Prepare and start equipment for production	
PMBPROD307C	Produce calendered products	*
PMBPROD308B	Take a machine out of production	
PMBPROD309C	Produce electroplated products	
PMBPROD310C	Produce injection moulded products	*
PMBPROD311C	Produce blow moulded products	*
PMBPROD312C	Produce continuous thermoforming products	*
PMBPROD313C	Produce extruded products	*
PMBPROD314C	Produce compression moulded products	
PMBPROD315C	Produce polyurethane foam	
PMBPROD316C	Produce blown film	*
PMBPROD317C	Print and decorate rigid products	*
PMBPROD318C	Build first stage tyres	
PMBPROD319C	Build up rollers	
PMBPROD320C	Produce foam injected mouldings	
PMBPROD321B	Produce rotational moulded products	*
PMBPROD323C	Produce powder coated products	
PMBPROD324B	Inspect tyres for retreading	
PMBPROD325B	Lay on tyre retreads	
PMBPROD326B	Inspect tyres	
PMBPROD327B	Produce finished tyres	



Unit code	Unit title	Prerequisites
PMBPROD328C	Produce sheet feed vacuum forming products	
PMBPROD329C	Produce polystyrene shape moulded products	*
PMBPROD330A	Make moulds for formed products	
PMBPROD331C	Produce printed and decorated film	
PMBPROD332C	Produce thermally bent products	
PMBPROD333B	Convert plastic film	*
PMBPROD334A	Produce products using twin screw extruders	
PMBPROD335C	Build second stage tyres	
PMBPROD336A	Inspect heavy off-the-road tyres	
PMBPROD337A	Prepare heavy off-the-road tyres for repair	
PMBPROD338A	Repair heavy off-the-road tyres	
PMBPROD339A	Produce reinforced conveyor belts	*
PMBPROD340A	Cure heavy off-the-road tyre repairs	
PMBPROD341A	Finish heavy off-the-road tyre repairs	
PMBPROD343C	Shut down plant area	
PMBPROD347B	Produce composites using hand lamination	*
PMBPROD349B	Produce liquid surface coated products	*
PMBPROD352A	Produce compounded materials	*
PMBPROD353B	Compound materials using an internal mill blender	*
PMBPROD354B	Compound materials using an open mill blender	*
PMBPROD355B	Make pattern/plug for composites moulds	*

Unit code	Unit title	Prerequisites
PMBPROD356C	Construct moulds for composite products	*
PMBPROD357C	Construct jigs and fixtures	
PMBPROD358C	Develop patterns	*
PMBPROD360B	Produce centrifugally cast polyurethane products	*
PMBPROD362B	Produce gravity cast polyurethane products	*
PMBPROD367B	Remove and replace conveyor belts	
PMBPROD368B	Repair conveyor belt carcass	*
PMBPROD369B	Repair conveyor belt covers	*
PMBPROD370B	Produce injection blow moulded products	*
PMBPROD372B	Produce fibre optic preforms	
PMBPROD373B	Draw optical fibre	
PMBPROD375B	Vulcanise products using an autoclave	
PMBPROD376A	Splice steel cord conveyor belts	*
PMBPROD377A	Splice fabric ply conveyor belts	*
PMBPROD378A	Splice solid woven conveyor belts	*
PMBPROD380B	Produce composites using chopper gun/depositor	*
PMBPROD384A	Operate multi-axis router	
PMBPROD385A	Program computer controlled equipment	
PMBPROD387B	Produce welded plastics materials	*
PMBPROD390B	Produce composites using filament winding	*
PMBPROD391B	Produce composites using resin infusion	*
PMBPROD392B	Produce composites using pultrusion	*
PMBPROD393B	Produce composites using vacuum bagging	*

Unit code	Unit title	Prerequisites
PMBPROD394B	Produce composites using resin transfer moulding	*
PMBPROD395B	Produce composite sheet products	*
PMBPROD396B	Produce composites using centrifugal casting	*
PMBPROD397B	Produce composites using moulding compounds	*
PMBPROD398B	Produce composites using pre-pregs	*
PMBTECH301B	Use material and process knowledge to solve problems	
PMBTECH302A	Modify existing compounds	
PMBTECH303A	Make minor modifications to products	
TLID3011A	Conduct specialised forklift operation	
A maximum of <b>two (2)</b> units of competency may be chosen from the units in Groups A and B of PMB40107 Certificate IV in Polymer Technology (at least one of which must be from Group A).		

### Group B

Unit code	Unit title	Prerequisite
MEM03001B	Perform manual production assembly	
MEM03006B	Set assembly stations	*
MEM11005B	Pick and process order	
MEM11006B	Perform production packaging	
MEM11007B	Administer inventory procedures	
MEM12023A	Perform engineering measurements	
MEM15001B	Perform basic statistical quality control	
MEM15003B	Use improvement processes in team	*

Unit code	Unit title	Prerequisite
	activities	
MEM15004B	Perform inspection	
MSS402002A	Sustain process improvements	
MSS402020A	Apply quick changeover procedures	
MSS402050A	Monitor process capability	
MSS402060A	Use planning software systems in operations	
MSS402080A	Undertake root cause analysis	
MSAPMOHS300A	Facilitate the implementation of OHS for a work group	*
MSAPMPER300C	Issue work permits	*
MSAPMSUP300A	Identify and implement opportunities to maximise production efficiencies	*
MSAPMSUP301A	Apply HACCP to the workplace	
MSAPMSUP303A	Identify equipment faults	
MSAPMSUP309A	Maintain and organise workplace records	
MSAPMSUP310A	Contribute to the development of plant documentation	
MSAPMSUP330A	Develop and adjust a production schedule	
MSAPMSUP382A	Provide coaching/mentoring in the workplace	
MSAPMSUP383A	Facilitate a team	
MSAPMSUP390A	Use structured problem solving tools	
PMBWASTE302C	Coordinate waste disposal	
PMBWELD301B	Butt weld polyethylene plastic pipelines	
PMBWELD302B	Electrofusion weld polyethylene pipelines	

Unit code	Unit title	Prerequisite
PMBWELD303B	Install polyethylene (non-pressure) drainage pipelines	
PMBWELD304B	Design polyethylene (non-pressure) drainage pipelines	*
PMBWELD305B	Install polyethylene plastic pressure pipelines	
PMBWELD306B	Design polyethylene plastic pressure pipelines	*
PMBWELD307B	Install high temperature plastic pressure pipelines	
PMBWELD308B	Install PVC plastic pressure pipelines	
PMBWELD309B	Weld plastic using extrusion techniques	
PMBWELD310B	Design PVC plastic pressure pipelines	*
PMBWELD311B	Design high temperature plastic pressure pipelines	*
MSL973001A	Perform basic tests	
TAEDEL301A	Provide work skill instruction	
Up to <b>two (2)</b> relevant units may be chosen from this Training Package, other endorsed Training Packages and accredited courses, where those units are available for inclusion at Certificate III.		

### Group C

Unit code	Unit title	Prerequisite
FPICOT2206B	Cross cut materials with a hand-held chainsaw	
LMTGN2008B	Coordinate work of team/section	
MEM13003B	Work safely with industrial chemicals	
MEM16006A	Organise and communicate information	

Unit code	Unit title	Prerequisite
MEM16007A	Work with others in a manufacturing, engineering or related environment	
MEM16008A	Interact with computer technology	
MEM18001C	Use hand tools	
MEM18002B	Use power tools/hand held operations	
MSS402021A	Apply Just in Time procedures	
MSS402030A	Apply cost factors to work practices	
MSS402040A	Apply 5S procedures	
MSAPMOHS100A	Follow OHS procedures	
MSAPMOHS110A	Follow emergency response procedures	
MSAPMOHS205A	Control minor incidents	
MSAPMOHS210B	Undertake first response to non-fire incidents	
MSAPMOHS212A	Undertake first response to fire incidents	
MSAPMOHS216A	Operate breathing apparatus	
MSAPMOHS217A	Gas test atmospheres	
MSAPMOHS220A	Provide initial first aid response	
MSAPMOPS100A	Use equipment	
MSAPMOPS101A	Make measurements	
MSAPMOPS102A	Perform tasks to support production	
MSAPMOPS200A	Operate equipment	
MSAPMOPS212A	Use enterprise computers or data systems	
MSAPMOPS244A	Layout and cut materials	
MSAPMPER200A	Work in accordance with an issued permit	
MSAPMPER201A	Monitor and control work permits	

Unit code	Unit title	Prerequisite
MSAPMPER205A	Enter confined space	
MSAPMSUP100A	Apply workplace procedures	
MSAPMSUP101A	Clean workplace or equipment	
MSAPMSUP102A	Communicate in the workplace	
MSAPMSUP106A	Work in a team	
MSAPMSUP172A	Identify and minimise environmental hazards	
MSAPMSUP200A	Achieve work outcomes	
MSAPMSUP201A	Receive or despatch goods	
MSAPMSUP204A	Pack products or materials	
MSAPMSUP205A	Transfer loads	
MSAPMSUP230A	Monitor process operations	
MSAPMSUP240A	Undertake minor maintenance	
MSAPMSUP273A	Handle goods	
MSAPMSUP280A	Manage conflict at work	
MSAPMSUP291A	Participate in continuous improvement	
MSAPMSUP292A	Sample and test materials and product	
PMBFIN201C	Finish products and components	
PMBFIN202C	Fit attachments to products	
PMBFIN203C	Repair product imperfections	
PMBFIN205C	Hand decorate products	
PMBHAN103C	Shift materials safely by hand	
PMBHAN208C	Store products	
PMBPREP201B	Prepare moulds for composites production	

Unit code	Unit title	Prerequisite
PMBPREP205C	Assemble materials and equipment for production	
PMBPREP206C	Prepare materials to formulae	
PMBPROD206B	Operate ancillary equipment	
PMBPROD207B	Operate calender	
PMBPROD209C	Operate cable winding equipment	
PMBPROD210B	Operate injection moulding equipment	
PMBPROD211B	Operate blow moulding equipment	
PMBPROD212B	Operate thermoforming equipment	
PMBPROD213B	Operate extruders	
PMBPROD216B	Operate blown film equipment	
PMBPROD217B	Operate printing equipment	
PMBPROD221B	Operate rotational moulding equipment	
PMBPROD229B	Operate polystyrene shape moulding equipment	
PMBPROD233B	Operate film conversion equipment	
PMBPROD235C	Use materials and process knowledge to complete work operations	
PMBPROD236C	Operate hand held air/power equipment for production processes	
PMBPROD237C	Splice cables	
PMBPROD238A	Perform creel rack operations	
PMBPROD239A	Build reinforced conveyor belts	
PMBPROD240C	Cut materials	
PMBPROD241C	Lay up rubber lining or lag pulleys	
PMBPROD242A	Bond polymers to surfaces	



Unit code	Unit title	Prerequisite
PMBPROD245C	Fabricate materials	
PMBPROD246C	Hand mix materials	
PMBPROD247C	Hand lay up composites	
PMBPROD248C	Prepare surfaces for coating	
PMBPROD249B	Apply liquid surface coatings	
PMBPROD251B	Apply gel coat or other polymer surface finish	
PMBPROD252C	Operate compounding equipment	
PMBPROD253C	Operate an internal mill blender	
PMBPROD254C	Operate an open mill blender	
PMBPROD255C	Operate mixing equipment	
PMBPROD259C	Operate granulating equipment	
PMBPROD261B	Operate continuous vulcanising equipment	
PMBPROD262B	Operate tyre curing equipment	
PMBPROD263B	Operate retread curing equipment	
PMBPROD264C	Check recycle wash process	
PMBPROD265C	Operate portable vulcanising equipment	
PMBPROD266B	Prepare tyre casings for retreading	
PMBPROD267B	Operate steel cutting equipment	
PMBPROD268B	Operate bead coiling equipment	
PMBPROD270B	Operate injection blow moulding equipment	
PMBPROD280B	Operate resin-glass depositor equipment	
PMBPROD281B	Finish composite products	
PMBPROD282B	Assemble mould	

Unit code	Unit title	Prerequisite
PMBPROD283B	Demould product	
PMBPROD284B	Operate open flame moulding equipment	
PMBPROD285A	Operate computer controlled equipment	
PMBPROD287B	Weld plastics materials	
PMBPROD290B	Operate filament winding equipment	
PMBPROD291B	Operate resin infusion moulding equipment	
PMBPROD292B	Operate pultrusion equipment	
PMBPROD293B	Operate vacuum bagging equipment	
PMBPROD294B	Operate resin transfer moulding equipment	
PMBPROD295B	Operate composite sheeting equipment	
PMBPROD296B	Operate centrifugal casting equipment	
PMBPROD297B	Operate equipment using moulding compounds	
PMBPROD298B	Operate equipment using pre-preg material	
PMBWASTE101C	Collect waste for recycling or safe disposal	
RIIRIS201B	Conduct local risk control	
TLID2010A	Operate a forklift	
Up to <b>four (4)</b> relevant units of competency may be chosen from this Training Package, other endorsed Training Packages and accredited courses, where those units are available for inclusion at Certificates II or III.		