



**Australian Government**

# **PMB40116 Certificate IV in Polymer Technology**

**Release: 1**

# PMB40116 Certificate IV in Polymer Technology

## Modification History

Release 1. Supersedes and is equivalent to PMB40107 Certificate IV in Polymer Technology.

## Qualification Description

The PMB40116 Certificate IV in Polymer Technology is intended for senior operators and polymer technicians

The senior operator/technician may be process-based and directly involved in production or they may be based elsewhere, for example, in a laboratory, although they will typically still have functions on the production floor.

The senior operator/technician will be able to apply specialised theoretical and technical knowledge and well developed operations skills in situations that require autonomy, discretion and judgement, such as product and process improvements and trialling.

The senior operator/technician will be able to solve complex problems which require in depth theoretical knowledge combined with an understanding of the production process and equipment.

This qualification applies to the production of a wide range of polymer products and components ranging from consumer products to components to be included in other commercial, industrial or consumer products. Products may be made from a wide range of natural and synthetic polymers covering thermoplastics as well as thermosetting polymers. Production may be long runs of standard products, short runs or 'one offs' of specialised products.

For people who require a more generalist qualification covering the application of good manufacturing practice and lean principles see MSS40316 Certificate IV in Competitive Systems and Practices.

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 licences in some jurisdictions. Local regulations should be checked for details.

**^ From 1 July 2022 the elective unit HLTAID003 must no longer be delivered and will be replaced in the Packaging Rules by the unit HLTAID011 - for more information see: <https://asqa.gov.au/news-events/news/reminder-about-superseded-hlt-first-aid-units>**

## Entry Requirements

There are no entry requirements for this qualification.

## Packaging Rules

To be awarded the PMB40116 Certificate IV in Polymer Technology competency must be achieved in **twenty-eight (28)** units of competency:

- **four (4)** core units of competency
- **twenty-four (24)** elective units of competency, as specified below:
  - a minimum of **three (3)** units from Group A
  - a minimum of **two (2)** units from Group B
  - the remainder of units may be chosen from Groups A, B and C, to bring the total number of electives to **twenty four (24)**.

Up to **ten (10)** of the elective units may be chosen from other qualifications in this Training Package, other endorsed Training Packages and accredited courses, as specified in Groups B and C.

**Note:** Units with prerequisites are marked with an asterisk\*. Prerequisite units must be counted in the total number of units required for achievement of the qualification. Refer to individual units for details.

### Core units of competency

Unit code	Unit title	
MSS402051	Apply quality standards	
MSMENV272	Participate in environmentally sustainable work practices	
MSMWHS200	Work safely	
MSMSUP210	Process and record information	
<b>Elective units of competency</b>		
<b>Group A</b>		
Unit code	Unit title	Prerequisites
MSMOPS400	Optimise process/plant area	*
MSMOPS401	Trial new process or product	
MSMSUP404	Coordinate maintenance	
MSMSUP405	Identify problems in fluid power system	

MSMSUP406	Identify problems in electronic control systems	
PMBPROD430	Trial a new die/tool	
PMBPROD431	Trial a new, advanced or complex mould	
PMBTECH401	Predict polymer properties and characteristics	*
PMBTECH402	Set advanced or complex dies	*
PMBTECH403	Test fibre-composites materials and laminates	
PMBTECH404	Mould chemical resistant and/or fire retardant fibre-composites	
PMBTECH405	Repair damaged fibre-composites structures	*
PMBTECH406	Diagnose production equipment problems	
<p>A maximum of <b>two (2)</b> units may be chosen from the units available in Group A of PMB50116 Diploma of Polymer Technology.</p>		

### Group B

Unit code	Unit title	Prerequisites
MEM15001B	Perform basic statistical quality control	
MSS403010	Facilitate change in an organisation implementing competitive systems and practices	
MSS403002	Ensure process improvements are sustained	
MSS403021	Facilitate a Just in Time system	
MSS403040	Facilitate and improve implementation of 5S	
MSS404050	Undertake process capability improvements	*
MSS403051	Mistake proof an operational process	
MSS404052	Apply statistics to operational processes	

MSMENV472	Implement and monitor environmentally sustainable work practices	
MSMWHS300	Facilitate the implementation of WHS for a work group	*
MSMWHS400	Contribute to WHS management system	*
MSMWHS401	Assess risk	
MSMSUP300	Identify and apply process improvements	*
MSMSUP301	Apply HACCP to the workplace	
MSMSUP303	Identify equipment faults	
MSMSUP309	Maintain and organise workplace records	
MSMSUP310	Contribute to the development of workplace documentation	
MSMSUP330	Develop and adjust a production schedule	
MSMSUP382	Provide coaching/mentoring in the workplace	
MSMSUP383	Facilitate a team	
MSMSUP390	Use structured problem solving tools	
MSMSUP400	Develop and monitor quality systems	
MSL973001	Perform basic tests	
MSL974003	Perform chemical tests and procedures	
PMBPROD336	Inspect heavy off-the-road tyres	
PMBPROD337	Prepare heavy off-the-road tyres for repair	
PMBPROD338	Repair heavy off-the-road tyres	
PMBPROD340	Cure heavy off-the-road tyre repairs	
PMBPROD341	Finish heavy off-the-road tyre repairs	
TLID3011	Conduct specialised forklift operation	
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 at Certificate IV.
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### Group C

Unit code	Unit title	Prerequisites
FWPCOT2238	Cut materials with a hand-held chainsaw	
HLTAID003 ^ HLTAID011	Provide first aid <b>Provide First Aid (must be delivered from 1 July 2022)</b>	
LMTGN2008B	Coordinate work of team/section	
MEM03001B	Perform manual production assembly	
MEM03006B	Set assembly stations	*
MEM09002B	Interpret technical drawing	
MEM09003B	Prepare basic engineering drawing	*
MEM11005B	Pick and process order	
MEM11006B	Perform production packaging	
MEM11007B	Administer inventory procedures	
MEM12023A	Perform engineering measurements	
MEM13003B	Work safely with industrial chemicals	
MEM15001B	Perform basic statistical quality control	
MEM15003B	Use improvement processes in team activities	*
MEM15004B	Perform inspection	
MEM16006A	Organise and communicate information	
MEM16007A	Work with others in a manufacturing, engineering or related environment	
MEM16008A	Interact with computing technology	
MEM18001C	Use hand tools	

MEM18002B	Use power tools/hand held operations	
MSS402002A	Sustain process improvements	
MSS402020	Apply quick changeover procedures	
MSS402021	Apply Just in Time procedures	
MSS402030	Apply cost factors to work practices	
MSS402040	Apply 5S procedures	
MSS402050	Monitor process capability	
MSS402060	Use planning software systems in operations	
MSS402080	Undertake root cause analysis	
MSMWHS100	Follow WHS procedures	
MSMWHS110	Follow emergency response procedures	
MSMWHS205	Control minor incidents	
MSMWHS210	Undertake first response to non-fire incidents	
MSMWHS212	Undertake first response to fire incidents	
MSMWHS216	Operate breathing apparatus	
MSMWHS217	Gas test atmospheres	
MSMOPS100	Use equipment	
MSMOPS101	Make measurements	
MSMOPS102	Perform tasks to support production	
MSMOPS200	Operate equipment	
MSMOPS212	Use organisation computers or data systems	
MSMOPS244	Lay out and cut materials	
MSMOPS363	Organise on site work	
MSMPER200	Work in accordance with an issued permit	
MSMPER201	Monitor and control work permits	

MSMPER205	Enter confined space	*
MSMPER300	Issue work permits	*
MSMSUP100	Apply workplace context to own job	
MSMSUP101	Clean workplace or equipment	
MSMSUP102	Communicate in the workplace	
MSMSUP106	Work in a team	
MSMENV172	Identify and minimise environmental hazards	
MSMSUP200	Achieve work outcomes	
MSMSUP204	Pack products or materials	
MSMSUP205	Transfer loads	
MSMSUP230	Monitor process operations	
MSMSUP240	Undertake minor maintenance	
MSMSUP273	Handle goods	
MSMSUP280	Manage conflict at work	
MSMSUP291	Participate in continuous improvement	
MSMSUP292	Sample and test materials and product	
PMBFIN201	Finish products and components	
PMBFIN202	Fit attachments to products	
PMBFIN203	Repair product imperfections	
PMBFIN205	Hand decorate products	
PMBHAN103	Shift materials safely by hand	
PMBHAN208	Store products	
PMBPREP201	Prepare moulds for composites production	
PMBPREP205	Assemble materials and equipment for production	
PMBPREP206	Prepare materials to formulae	



PMBPREP301	Set up and prepare for production	
PMBPREP303	Set up equipment for continuous operation	
PMBPREP304	Set a die	
PMBPREP305	Change extrusion die and setup	
PMBPROD206	Operate ancillary equipment	
PMBPROD207	Operate calender	
PMBPROD209	Operate cable winding equipment	
PMBPROD210	Operate injection moulding equipment	
PMBPROD211	Operate blow moulding equipment	
PMBPROD212	Operate thermoforming equipment	
PMBPROD213	Operate extruders	
PMBPROD216	Operate blown film equipment	
PMBPROD217	Operate printing equipment	
PMBPROD221	Operate rotational moulding equipment	
PMBPROD229	Operate polystyrene shape moulding equipment	
PMBPROD233	Operate film conversion equipment	
PMBPROD235	Use materials and process knowledge to complete work operations	
PMBPROD236	Operate hand held air/power equipment for production processes	
PMBPROD237	Splice cables	
PMBPROD238	Perform creel rack operations	
PMBPROD239	Build reinforced conveyor belts	
PMBPROD240	Cut materials	
PMBPROD241	Lay up rubber lining or lag pulleys	
PMBPROD242	Bond polymers to surfaces	

PMBPROD245	Fabricate materials	
PMBPROD246	Hand mix materials	
PMBPROD247	Hand lay up composites	
PMBPROD248	Prepare surfaces for coating	
PMBPROD249	Apply liquid surface coatings	
PMBPROD251	Apply gel coat or other polymer surface finish	
PMBPROD252	Operate compounding equipment	
PMBPROD253	Operate an internal mill blender	
PMBPROD254	Operate an open mill blender	
PMBPROD255	Operate mixing equipment	
PMBPROD259	Operate granulating equipment	
PMBPROD261	Operate continuous vulcanising equipment	
PMBPROD262	Operate tyre curing equipment	
PMBPROD263	Operate retread curing equipment	
PMBPROD264	Check recycle wash process	
PMBPROD265	Operate portable vulcanising equipment	
PMBPROD266	Prepare tyre casings for retreading	
PMBPROD267	Operate steel cutting equipment	
PMBPROD268	Operate bead coiling equipment	
PMBPROD270	Operate injection blow moulding equipment	
PMBPROD280	Operate resin-glass depositor equipment	
PMBPROD281	Finish composite products	
PMBPROD282	Assemble mould	
PMBPROD283	Demould product	
PMBPROD284	Operate open flame moulding equipment	

PMBPROD285	Operate computer controlled equipment	
PMBPROD287	Weld plastics materials	
PMBPROD290	Operate filament winding equipment	
PMBPROD291	Operate resin infusion moulding equipment	
PMBPROD292	Operate pultrusion equipment	
PMBPROD293	Operate vacuum bagging equipment	
PMBPROD294	Operate resin transfer moulding equipment	
PMBPROD295	Operate composite sheeting equipment	
PMBPROD296	Operate centrifugal casting equipment	
PMBPROD297	Operate equipment using moulding compounds	
PMBPROD298	Operate equipment using pre-preg material	
PMBPROD300	Produce products	
PMBPROD301	Draw wire	
PMBPROD302	Bunch and strand wire	
PMBPROD303	Lay up and tape cables	
PMBPROD304	Wind products onto drums	
PMBPROD305	Colour optical fibre	
PMBPROD306	Prepare and start equipment for production	
PMBPROD307	Produce calendered products	*
PMBPROD308	Take a machine out of production	
PMBPROD309	Produce electroplated products	
PMBPROD310	Produce injection moulded products	*
PMBPROD311	Produce blow moulded products	*
PMBPROD312	Produce continuous thermoforming products	*
PMBPROD313	Produce extruded products	*

PMBPROD314	Produce compression moulded products	
PMBPROD315	Produce polyurethane foam	
PMBPROD316	Produce blown film	*
PMBPROD317	Print and decorate rigid products	*
PMBPROD319	Build up rollers	
PMBPROD320	Produce foam injected mouldings	
PMBPROD321	Produce rotational moulded products	*
PMBPROD323	Produce powder coated products	
PMBPROD324	Inspect tyres for retreading	
PMBPROD325	Lay on tyre retreads	
PMBPROD326	Inspect tyres	
PMBPROD328	Produce sheet feed vacuum forming products	
PMBPROD329	Produce polystyrene shape moulded products	*
PMBPROD330	Make moulds for formed products	
PMBPROD331	Produce printed and decorated film	
PMBPROD332	Produce thermally bent products	
PMBPROD333	Convert plastic film	*
PMBPROD334	Produce products using twin screw extruders	
PMBPROD339	Produce reinforced conveyor belts	*
PMBPROD343	Shut down plant area	
PMBPROD347	Produce composites using hand lamination	*
PMBPROD349	Produce liquid surface coated products	*
PMBPROD352	Produce compounded materials	*
PMBPROD353	Compound materials using an internal mill blender	*
PMBPROD354	Compound materials using an open mill blender	*

PMBPROD355	Make pattern/plug for composites moulds	*
PMBPROD356	Construct moulds for composite products	*
PMBPROD357	Construct jigs and fixtures	
PMBPROD358	Develop patterns	*
PMBPROD360	Produce centrifugally cast polyurethane products	*
PMBPROD362	Produce gravity cast polyurethane products	*
PMBPROD367	Remove and replace conveyor belts	
PMBPROD368	Repair conveyor belt carcass	*
PMBPROD369	Repair conveyor belt covers	*
PMBPROD370	Produce injection blow moulded products	*
PMBPROD372	Produce fibre optic preforms	
PMBPROD373	Draw optical fibre	
PMBPROD375	Vulcanise products using an autoclave	
PMBPROD376	Splice steel cord conveyor belts	*
PMBPROD377	Splice fabric ply conveyor belts	*
PMBPROD378	Splice solid woven conveyor belts	*
PMBPROD380	Produce composites using chopper gun/depositor	*
PMBPROD384	Operate multi-axis router	
PMBPROD385	Program computer controlled equipment	
PMBPROD387	Produce welded plastics materials	*
PMBPROD390	Produce composites using filament winding	*
PMBPROD391	Produce composites using resin infusion	*
PMBPROD392	Produce composites using pultrusion	*
PMBPROD393	Produce composites using vacuum bagging	*
PMBPROD394	Produce composites using resin transfer moulding	*

PMBPROD395	Produce composite sheet products	*
PMBPROD396	Produce composites using centrifugal casting	*
PMBPROD397	Produce composites using moulding compounds	*
PMBPROD398	Produce composites using pre-pregs	*
PMBTECH301	Use material and process knowledge to solve problems	
PMBTECH302	Modify existing compounds	
PMBTECH303	Make minor modifications to products	
PMBWASTE101	Collect waste for recycling or safe disposal	
PMBWASTE302	Coordinate waste disposal	
PMBWELD301	Butt weld polyethylene plastic pipelines	
PMBWELD302	Electrofusion weld polyethylene pipelines	
PMBWELD303	Install polyethylene (non-pressure) drainage pipelines	
PMBWELD304	Design polyethylene (non-pressure) drainage pipelines	*
PMBWELD305	Install polyethylene plastic pressure pipelines	
PMBWELD306	Design polyethylene plastic pressure pipelines	*
PMBWELD307	Install high temperature plastic pressure pipelines	
PMBWELD308	Install PVC plastic pressure pipelines	
PMBWELD309	Weld plastic using extrusion techniques	
PMBWELD310	Design PVC plastic pressure pipelines	*
PMBWELD311	Design high temperature plastic pressure pipelines	*
RIIRIS201D	Conduct local risk control	
TAEASS301	Contribute to assessment	
TAEASS401	Plan assessment activities and processes	

TAEASS402	Assess competence	
TAEASS403	Participate in assessment validation	
TAEDEL301	Provide work skill instruction	
TLID2010	Operate a forklift	
<p>Up to <b>eight (8)</b> relevant units may be chosen from this Training Package, other endorsed Training Packages and accredited courses, where those units are available at Certificates II or III. (Note that a maximum of <b>four (4)</b> of these units can be available at Certificate II).</p>		

## Qualification Mapping Information

Release 1. Supersedes and is equivalent to PMB40107 Certificate IV in Polymer Technology.

## Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=932aacef-7947-4c80-acc6-593719fe4090>