

National Higher Qualifications

For

Manufactured Mineral Products Package



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SECTION 1 – PACKAGE BACKGROUND

Background to the Operations Training Package

The manufactured mineral products industry

This diverse industry typically interfaces with the extractive industries upstream, although some companies are also involved in the extractive industries. The industry produces a range of products which are typically used by other industries rather than directly consumed by the public. Downstream industries include building and construction (cement, concrete products, glass, clay and ceramic, fibre cement products), civil construction (cement, concrete products, asphalt), food and beverage (glass bottles and jars), heavy industry (refractories), automotive industry (glass) and landscaping industry (concrete blocks and pavers). Parts of the industry do directly service the consumer market such as ceramics (bathroom ware, dinner sets) and concrete products (blocks, pavers, gnomes and bird baths).

The industry has a large and significant 'related products' group (statistically 'not elsewhere classified'). This sector covers a range from making refractory products for use by heavy industry (iron/steel, non-ferrous metals, automotive engines etc), through fibre cement (building products) to abrasives and the manufacture of talcum powder.

Section 2 - PMC20110 Certificate II in Manufactured Mineral Products

This qualification covers the skills and knowledge required to perform a range of process operations within the manufactured mineral products industries.

The Certificate II in Manufactured Mineral Products is intended for competent operators who operate production equipment or undertake similar roles directly producing products. The operator would apply a breadth and depth of knowledge to a defined range of situations and would be expected to apply this knowledge to solve a defined range of problems by applying known solutions to a limited range of predictable problems.

Application

This qualification is typically used to prepare new employees or develop existing workers performing an operational role in the production of manufactured mineral products.

Operators may specialise in one of the following sectors:

- cement
- precast concrete products
- premixed concrete
- clay products
- ceramic products
- float (flat) glass
- glass containers
- refractories
- plaster (both fibrous plaster and plaster boards)
- fibre cement boards and other products
- ground minerals
- abrasive grinding wheels and cutting discs

Packaging Rules

To be awarded the Certificate II in Manufactured Mineral Products competency must be achieved in **fifteen (15)** units of competency:

- **six (6)** core units of competency
- **nine (9)** elective units of competency from Groups A and B, as specified below.

All **five (5)** of these units must be chosen.

MSAENV272A	Participate in environmentally sustainable work practices
MSAPMOHS200A	Work safely
MSAPMSUP100A	Apply workplace procedures
MSAPMSUP101A	Clean workplace or equipment
MSAPMSUP102A	Communicate in the workplace

Select **one (1)** of the following

MSAPMOPS101A	Make measurements
PMAOPS101C	Read dials and indicators

Group A - Specialist electives

A minimum of **two (2)** specialist elective units must be chosen from the list below

MSAPMOPS200A	Operate equipment
MSAPMOPS212A	Use enterprise computers or data systems
MSAPMSUP230A	Monitor process operations
PMAOPS216B	Operate local control system
PMC552002C	Operate equipment to blend/mix materials
PMC552003C	Operate grinding equipment
PMC552004C	Prepare for production
PMC552005C	Process greenware/green products
PMC552006C	Operate an autoclave
PMC552007B	Heat accelerate the curing of precast concrete
PMC552008B	Operate crushing equipment
PMC552010C	Operate a calcining kiln
PMC552020C	Operate slip casting equipment
PMC552021C	Operate manual glazing equipment
PMC552022C	Prepare materials for clay and ceramic production
PMC552023C	Finish products after firing
PMC552024C	Hand mould products
PMC552030C	Operate a firing kiln
PMC552031C	Operate extrusion equipment
PMC552032C	Operate pressing equipment
PMC552040C	Operate melting process
PMC552041C	Operate process ovens
PMC552042C	Operate blown insulation equipment

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PMC552043C	Operate float forming equipment
PMC552044C	Operate fibre forming equipment
PMC552045C	Operate container forming equipment
PMC552046C	Operate glass printing equipment
PMC552047C	Operate primary annealing equipment
PMC552048C	Operate glass finishing equipment
PMC552049C	Operate on-line stacking and assembly equipment
PMC552050C	Schedule, cut and bend reinforcement
PMC552051C	Finish green concrete products
PMC552052C	Cast moulded concrete products
PMC552053C	Finish cured concrete products
PMC552054C	Spin concrete pipes
PMC552055C	Conduct benching operations
PMC552056B	Assemble, fabricate and place reinforcement
PMC552057B	Finish casting operation
PMC552058B	Demould concrete products
PMC552060C	Batch mix concrete
PMC552061C	Deliver concrete to site
PMC552065B	Prepare asphalt
PMC552070B	Operate forming equipment
PMC552071B	Operate wet and dry end equipment
PMC552072B	Produce fibrous plasterboard
PMC552090B	Use and maintain tools and equipment for refractory operations
PMC552091B	Prepare for, install and repair refractory brickwork /blockwork
PMC552092B	Prepare for and install mouldable refractory materials
PMC552093B	Prepare for and cast refractory materials
PMC552094B	Prepare for and apply shotcrete for installation
PMC552095B	Prepare for, install and repair ceramic fibre

Group B - Other electives

The balance of units, to a maximum of **seven (7)**, may be drawn in any combination from:

MNMC205A	Conduct local risk assessment
MSACMT230A	Apply cost factors to work practices
MSACMT231A	Interpret product costs in terms of customer requirements
MSACMT240A	Apply 5S procedures in a manufacturing environment
MSACMT250A	Monitor process capability
MSACMT251A	Apply quality standards
MSACMT260A	Use planning software systems in manufacturing
MSACMT270A	Use sustainable energy practices
MSACMT271A	Use sustainable environmental practices
MSACMT280A	Undertake root cause analysis
MSACMT281A	Contribute to the application of a proactive maintenance strategy
MSAPMOHS110A	Follow emergency response procedures
MSAPMOPS100A	Use equipment
MSAPMPER200B	Work in accordance with an issued permit
MSAPMPER201A	Monitor and control work permits
MSAPMPER202A	Observe permit work
MSAPMPER205B	Enter confined space
MSAPMSUP106A	Work in a team
MSAPMSUP200A	Achieve work outcomes
MSAPMSUP201A	Receive or despatch goods
MSAPMSUP210A	Process and record information
MSAPMSUP240A	Undertake minor maintenance
MSAPMSUP280A	Manage conflict at work
MSAPMSUP292A	Sample and test materials and product
MSL952001A	Collect routine site samples

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PMAOPS105C	Select and prepare materials
PMBHAN103C	Shift materials safely by hand
PMC561072C	Store materials for production
PMC561080B	Organise self
PMC562070B	Move materials
PMC562071C	Operate bulk materials handling equipment
PMC562075B	Maintain kiln refractory
PMC562081B	Deliver customer service
PMC562083C	Allocate and complete team tasks
TLIC307C	Drive medium rigid vehicle
TLIC407D	Drive heavy rigid vehicle
TLID1007C	Operate a forklift

Section 3 - PMC30110 Certificate III in Manufactured Mineral Products

This qualification covers the skills and knowledge required to perform a range of advanced operations within the manufactured mineral products industries.

The Certificate III in Manufactured Mineral Products is intended for advanced operators and operations technicians who use production equipment to directly produce products. At this level, operators/technicians would undertake more advanced operations, typically including startup 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.

Application

This qualification is typically used to develop employees performing an advanced operational role that includes an ability to work independently and conduct technical problem solving according to the needs of the work in the manufactured mineral products industries.

Operators may specialise in one of the following areas:

- cement
- precast concrete
- premixed concrete
- clay products
- ceramic products
- float (flat) glass
- glass containers
- refractories
- plaster (both fibrous plaster and plaster boards)
- fibre cement boards
- ground minerals
- abrasive grinding wheels and cutting discs

Packaging Rules

To be awarded the Certificate III in Manufactured Mineral Products competency must be achieved in **twenty (20)** units of competency:

- **six (6)** core units
- **fourteen (14)** elective units of competency from Groups A and B, below.

Core units of competency Select **six (6)** core units of competency as specified below.

All **five (5)** of these units must be chosen.

MSAENV272A	Participate in environmentally sustainable work practices
MSAPMOHS200A	Work safely
MSAPMSUP100A	Apply workplace procedures

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MSAPMSUP101A	Clean workplace or equipment
MSAPMSUP102A	Communicate in the workplace

MSAPMOPS101A	Make measurements
PMAOPS101C	Read dials and indicators

Group A - Specialist electives

MSL974005A	Perform physical tests
PMAOPS305B	Operate process control systems
PMC553000C	Set up and tune a process
PMC553010C	Process raw meal into product
PMC553020C	Prepare moulds and dies
PMC553021C	Set up and tune glazing equipment
PMC553040C	Set up and optimise glass forming process
PMC553041C	Set up and optimise glass furnace process
PMC553042C	Set up and optimise secondary process
PMC553050C	Produce architectural precast concrete
PMC553051B	Produce structural precast concrete
PMC553070B	Design and construct moulds for fibrous plaster products
PMC553072B	Model fibrous plaster products
PMC553080B	Set up and optimise finishing process

Group B - Other electives

MEM09002B	Interpret technical drawing
MSAPMOHS300A	Facilitate the implementation of OHS for a work group
MSAPMPER300B	Issue work permits
MSAPMSUP300A	Identify and implement opportunities to maximise production efficiencies
MSAPMSUP303A	Identify equipment faults
MSAPMSUP310A	Contribute to development of plant documentation
MSAPMSUP330A	Develop and adjust a production schedule

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MSAPMSUP382A	Provide coaching/mentoring in the workplace
MSAPMSUP390A	Use structured problem solving tools
MSL973001A	Perform basic tests
PMC563081C	Carry out stock control
TAAASS301B	Contribute to assessment
TAADEL301C	Provide training through instruction and demonstration of work skills

Group B2

MNMC205A	Conduct local risk assessment
MSACMT230A	Apply cost factors to work practices
MSACMT231A	Interpret product costs in terms of customer requirements
MSACMT240A	Apply 5S procedures in a manufacturing environment
MSACMT250A	Monitor process capability
MSACMT251A	Apply quality standards
MSACMT260A	Use planning software systems in manufacturing
MSACMT270A	Use sustainable energy practices
MSACMT271A	Use sustainable environmental practices
MSACMT280A	Undertake root cause analysis
MSACMT281A	Contribute to the application of a proactive
MSAPMOHS110A	Follow emergency response procedures
MSAPMOPS100A	Use equipment
MSAPMOPS200A	Operate equipment
MSAPMOPS212A	Use enterprise computers or data systems
MSAPMPER200B	Work in accordance with an issued permit
MSAPMPER201A	Monitor and control work permits
MSAPMPER202A	Observe permit work
MSAPMPER205B	Enter confined space
MSAPMSUP106A	Work in a team
MSAPMSUP200A	Achieve work outcomes
MSAPMSUP201A	Receive or despatch goods
MSAPMSUP210A	Process and record information

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MSAPMSUP230A	Monitor process operations
MSAPMSUP240A	Undertake minor maintenance
MSAPMSUP280A	Manage conflict at work
MSAPMSUP292A	Sample and test materials and product
MSL952001A	Collect routine site samples
PMAOPS105C	Select and prepare materials
PMAOPS216B	Operate local control system
PMBHAN103C	Shift materials safely by hand
PMC552002C	Operate equipment to blend/mix materials
PMC552003C	Operate grinding equipment
PMC552004C	Prepare for production
PMC552005C	Process greenware/green products
PMC552006C	Operate an autoclave
PMC552007B	Heat accelerate the curing of precast concrete
PMC552008B	Operate crushing equipment
PMC552010C	Operate a calcining kiln
PMC552020C	Operate slip casting equipment
PMC552021C	Operate manual glazing equipment
PMC552022C	Prepare materials for clay and ceramic production
PMC552023C	Finish products after firing
PMC552024C	Hand mould products
PMC552030C	Operate a firing kiln
PMC552031C	Operate extrusion equipment
PMC552032C	Operate pressing equipment
PMC552040C	Operate melting process
PMC552041C	Operate process ovens
PMC552042C	Operate blown insulation equipment
PMC552043C	Operate float forming equipment
PMC552044C	Operate fibre forming equipment
PMC552045C	Operate container forming equipment

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PMC552046C	Operate glass printing equipment
PMC552047C	Operate primary annealing equipment
PMC552048C	Operate glass finishing equipment
PMC552049C	Operate on-line stacking and assembly equipment
PMC552050C	Schedule, cut and bend reinforcement
PMC552051C	Finish green concrete products
PMC552052C	Cast moulded concrete products
PMC552053C	Finish cured concrete products
PMC552054C	Spin concrete pipes
PMC552055C	Conduct benching operations
PMC552056B	Assemble, fabricate and place reinforcement
PMC552057B	Finish casting operation
PMC552058B	Demould concrete products
PMC552060C	Batch mix concrete
PMC552061C	Deliver concrete to site
PMC552065B	Prepare asphalt
PMC552070B	Operate forming equipment
PMC552071B	Operate wet and dry end equipment
PMC552072B	Produce fibrous plasterboard
PMC552090B	Use and maintain tools and equipment for refractory operations
PMC552091B	Prepare for, install and repair refractory brickwork/blockwork
PMC552092B	Prepare for and install mouldable refractory materials
PMC552093B	Prepare for and cast refractory materials
PMC552094B	Prepare for and apply shotcrete for installation
PMC561072C	Store materials for production
PMC561080B	Organise self
PMC562070B	Move materials
PMC562071C	Operate bulk materials handling equipment
PMC562075B	Maintain kiln refractory
PMC562081B	Deliver customer service
PMC562083C	Allocate and complete team tasks
TLIC307C	Drive medium rigid vehicle

TLIC407D	Drive heavy rigid vehicle
TLID1007C	Operate a forklift

Section 4 - PMC40110 Certificate IV in Manufactured Mineral Products

This qualification covers the skills and knowledge required to perform a range of high level technical operations within the manufactured mineral products industries.

The Certificate IV in Manufactured Mineral Products is intended for plant technicians.

The technician will typically be involved in solving complex problems which require theoretical knowledge, combined with an understanding of the production process and equipment across the plant.

Application

This qualification is typically used to develop employees performing a technical role that includes an ability to work independently and conduct technical problem solving according to the needs of the work in the manufactured mineral products industries.

Non-technical team leaders, coordinators and supervisors may be better served by a qualification in competitive manufacturing.

People with this qualification may be expected to work in one of the following sectors:

- cement
- precast concrete
- premixed concrete
- clay products
- ceramic products
- float (flat) glass
- glass containers
- refractories
- plaster (both fibrous plaster and plaster boards)
- fibre cement boards
- ground minerals
- abrasive grinding wheels and cutting discs

Packaging Rules

To be awarded the Certificate IV in Manufactured Mineral Products competency must be achieved in **twenty four (24)** units of competency:

- **seven (7)** core units of competency
- **seventeen (17)** elective units of competency from Groups A and B

MSAENV272A	Participate in environmentally sustainable work practices
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MMP Operations

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MSAPMOHS200A	Work safely
MSAPMSUP100A	Apply workplace procedures
MSAPMSUP101A	Clean workplace or equipment
MSAPMSUP102A	Communicate in the workplace
MSAPMSUP200A	Achieve work outcomes

Select **one (1)** of the following units

MSAPMOPS101A	Make measurements
PMAOPS101C	Read dials and indicators

Group A - Specialist electives

MSAPMOPS400A	Optimise process/plant area
MSAPMOPS401A	Trial new process or product
MSAPMOPS404A	Co-ordinate maintenance
MSAPMOPS405A	Identify problems in fluid power system
MSAPMOPS406A	Identify problems in electronic control systems
PMAOPS402A	Respond to abnormal process situations
PMAOPS405A	Operate complex control systems
PMC554020D	Design and prepare models, moulds and dies
PMC554090B	Undertake simple refractory design
PMC554091B	Analyse refractory failures

Group B - Other electives

The balance of units, to a maximum of **sixteen (16)**

MSACMC411A	Lead a competitive manufacturing team
MSACMC413A	Lead team culture improvement
MSACMS401A	Ensure process improvements are sustained
MSACMT430A	Improve cost factors in work practices
MSACMT440A	Lead 5S in a manufacturing environment
MSACMT441A	Facilitate continuous improvement in manufacturing
MSACMT450A	Undertake process capability improvements

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MSACMT451A	Mistake proof a production process
MSACMT452A	Apply statistics to processes in manufacturing
MSACMT460A	Facilitate the use of planning software systems in manufacturing
MSACMT481A	Undertake proactive maintenance analyses
MSACMT482A	Assist in implementing a proactive maintenance strategy
MSAENV472A	Implement and monitor environmentally sustainable work practices
MSAPMOHS400A	Contribute to OHS management system
MSAPMOHS401A	Assess risk
MSAPMPER400A	Coordinate permit process
PMASUP420B	Minimise environmental impact of process
PSPPM402B	Manage simple projects
TAAASS401C	Plan and organise assessment
TAAASS402C	Assess competence
TAAASS403B	Develop assessment tools
TAAASS404B	Participate in assessment validation

Group B2

MEM09002B	Interpret technical drawing
MNMC205A	Conduct local risk assessment
MSACMT230A	Apply cost factors to work practices
MSACMT231A	Interpret product costs in terms of customer requirements
MSACMT240A	Apply 5S procedures in a manufacturing environment
MSACMT250A	Monitor process capability
MSACMT251A	Apply quality standards
MSACMT260A	Use planning software systems in manufacturing

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MSACMT270A	Use sustainable energy practices
MSACMT271A	Use sustainable environmental practices
MSACMT280A	Undertake root cause analysis

MSACMT281A	Contribute to the application of a proactive maintenance strategy
MSAPMOHS110A	Follow emergency response procedures
MSAPMOHS300A	Facilitate the implementation of OHS for a work group
MSAPMOPS100A	Use equipment
MSAPMOPS200A	Operate equipment
MSAPMOPS212A	Use enterprise computers or data systems
MSAPMPER200B	Work in accordance with an issued permit
MSAPMPER201A	Monitor and control work permits
MSAPMPER202A	Observe permit work
MSAPMPER205B	Enter confined space
MSAPMPER300B	Issue work permits
MSAPMSUP106A	Work in a team
MSAPMSUP201A	Receive or despatch goods
MSAPMSUP210A	Process and record information
MSAPMSUP230A	Monitor process operations
MSAPMSUP240A	Undertake minor maintenance
MSAPMSUP280A	Manage conflict at work
MSAPMSUP292A	Sample and test materials and product
MSAPMSUP300A	Identify and implement opportunities to maximise production efficiencies
MSAPMSUP303A	Identify equipment faults
MSAPMSUP310A	Contribute to development of plant documentation
MSAPMSUP330A	Develop and adjust a production schedule
MSAPMSUP382A	Provide coaching/mentoring in the workplace

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MSAPMSUP390A	Use structured problem solving tools
MSL952001A	Collect routine site samples
MSL973001A	Perform basic tests
MSL974005A	Perform physical tests
PMAOPS105C	Select and prepare materials
PMAOPS216B	Operate local control system
PMAOPS305B	Operate process control systems
PMBHAN103C	Shift materials safely by hand
PMC552002C	Operate equipment to blend/mix materials
PMC552003C	Operate grinding equipment
PMC552004C	Prepare for production
PMC552005C	Process greenware/green products
PMC552006C	Operate an autoclave
PMC552007B	Heat accelerate the curing of precast concrete
PMC552008B	Operate crushing equipment
PMC552010C	Operate a calcining kiln
PMC552020C	Operate slip casting equipment
PMC552021C	Operate manual glazing equipment
PMC552022C	Prepare materials for clay and ceramic production
PMC552023C	Finish products after firing
PMC552024C	Hand mould products
PMC552030C	Operate a firing kiln
PMC552031C	Operate extrusion equipment
PMC552032C	Operate pressing equipment
PMC552040C	Operate melting process
PMC552041C	Operate process ovens
PMC552042C	Operate blown insulation equipment
PMC552043C	Operate float forming equipment
PMC552044C	Operate fibre forming equipment
PMC552045C	Operate container forming equipment

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PMC552046C	Operate glass printing equipment
PMC552047C	Operate primary annealing equipment
PMC552048C	Operate glass finishing equipment
PMC552049C	Operate on-line stacking and assembly equipment
PMC552050C	Schedule, cut and bend reinforcement
PMC552051C	Finish green concrete products
PMC552052C	Cast moulded concrete products
PMC552053C	Finish cured concrete products
PMC552054C	Spin concrete pipes
PMC552055C	Conduct benching operations
PMC552056B	Assemble, fabricate and place reinforcement
PMC552057B	Finish casting operation
PMC552058B	Demould concrete products
PMC552060C	Batch mix concrete
PMC552061C	Deliver concrete to site
PMC552065B	Prepare asphalt
PMC552070B	Operate forming equipment
PMC552071B	Operate wet and dry end equipment
PMC552072B	Produce fibrous plasterboard
PMC552090B	Use and maintain tools and equipment for refractory operations
PMC552091B	Prepare for, install and repair refractory brickwork/blockwork
PMC552092B	Prepare for and install mouldable refractory materials
PMC552093B	Prepare for and cast refractory materials
PMC552094B	Prepare for and apply shotcrete for installation
PMC552095B	Prepare for, install and repair ceramic fibre
PMC553000C	Set up and tune a process
PMC553010C	Process raw meal into product
PMC553020C	Prepare moulds and dies
PMC553021C	Set up and tune glazing equipment
PMC553040C	Set up and optimise glass forming process

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PMC553041C	Set up and optimise glass furnace process
PMC553042C	Set up and optimise secondary process
PMC553050C	Produce architectural precast concrete
PMC553051B	Produce structural precast concrete
PMC553070B	Design and construct moulds for fibrous plaster products
PMC553072B	Model fibrous plaster products
PMC553080B	Set up and optimise finishing process
PMC561072C	Store materials for production
PMC561080B	Organise self
PMC562070B	Move materials
PMC562071C	Operate bulk materials handling equipment
PMC562075B	Maintain kiln refractory
PMC562081B	Deliver customer service
PMC562083C	Allocate and complete team tasks
PMC563081C	Carry out stock control
TAAASS301B	Contribute to assessment
TAADEL301C	Provide training through instruction and demonstration of work skills
TLIC307C	Drive medium rigid vehicle
TLIC407D	Drive heavy rigid vehicle
TLID1007C	Operate a forklift