



Australian Government

MEM04019 Perform refractory installation and repair

Release: 1

MEM04019 Perform refractory installation and repair

Modification History

Release 1. Supersedes and is equivalent to MEM04019B Perform refractory installation and repair

Application

This unit of competency defines the skills and knowledge required to repair and install/replace all types of refractory, including relining furnaces, treatment vessels, ladles and launders.

It applies to the installation of the heat insulating material used inside molten metal vessels and includes material which can be machine rammed, hand rammed, forked or vibrated and includes refractory bricks and fibreboard.

Where routine repair/repointing of refractory during operational maintenance is required unit MEM04001 Operate melting furnaces and MEM04007 Pour molten metal, should also be selected as appropriate.

Where the interpretation of technical drawings is required unit MEM09002 Interpret technical drawing should also be selected.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Band: A

Unit Weight: 4

Pre-requisite Unit

MEM11011	Undertake manual handling
MEM12023	Perform engineering measurements
MEM12024	Perform computations
MEM13015	Work safely and effectively in manufacturing and engineering
MEM14006	Plan work activities
MEM16006	Organise and communicate information
MEM18001	Use hand tools
MEM18002	Use power tools/hand held operations

Competency Field

Casting and moulding

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1	Determine job requirements	1.1	Follow standard operating procedures (SOPs)
		1.2	Comply with work health and safety (WHS) requirements at all times
		1.3	Use appropriate personal protective equipment (PPE) in accordance with SOPs
		1.4	Identify job requirements from specifications, sketches, job sheets or work instructions
2	Inspect and knock out refractory	2.1	Identify specific areas of the refractory for repair or replacement
		2.2	Determine sequence of operations to remove refractory to meet the job specification
		2.3	Select appropriate tools and equipment to safely remove damaged refractory
		2.4	Remove and dispose of damaged refractory according to requirements
3	Prepare refractory materials	3.1	Select appropriate refractory materials to meet specifications
		3.2	Mix refractory media to requirements
4	Install refractory	4.1	Determine installation of refractory sequence of operations
		4.2	Install refractory using appropriate tools, equipment and techniques

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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| 5 | Cure refractory | 5.1 | Cure refractory to specifications using appropriate equipment, techniques and procedures |
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Foundation Skills

This section describes those required skills (reading, writing, oral communication and numeracy) that are essential to workplace performance in this unit of competency.

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.

- Installed includes one (1) or more of the following:**
- hand ramming
 - machine ramming
 - forked
 - internal and external vibration

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>

Assessment Requirements for MEM04019 Perform refractory installation and repair

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria on at least two (2) occasions and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- inspecting refractory by reading, interpreting and following specifications to identify specific areas for repair or replacement
- knocking out refractory by determining sequence of operations
- selecting appropriate tools and equipment to safely remove damaged material
- removing and disposing damaged material in accordance with regulatory and legislative requirements
- preparing and installing heat insulated materials used inside molten metal vessels using appropriate tools and equipment
- curing refractory to specifications using appropriate techniques, equipment and standard operating procedures.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- safe work practices and procedures and use of personal protective equipment (PPE)
- repair or replacement requirements
- inspection techniques
- mixing, installing and curing techniques and equipment
- work health and safety (WHS) legislation and Environmental Protection Authority (EPA) regulations applying to working with refractory materials,

Assessment Conditions

- Assessors must:
 - have vocational competency in performing refractory installation and repair at least to the level being assessed with relevant industry knowledge and experience

- satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015* or its replacement and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires
- Where possible assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

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