



Australian Government

MEM06003 Carry out heat treatment

Release: 1

MEM06003 Carry out heat treatment

Modification History

Release 1. Supersedes and is equivalent to MEM06003C Carry out heat treatment

Application

This unit of competency defines the skills and knowledge required to carry out heat treatment using a variety of equipment for cast metal products, machine tooling, and forged and machined components.

Where simple heat treatment applications like annealing and/or heat/quench processes undertaken as incidental to trade work (e.g. toolmaking) is required unit MEM06007 Perform basic incidental heat/quenching, tempering and annealing should be selected.

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

Where the selection and use of engineering measurement is required unit MEM12023 Perform engineering measurements should also be selected.

Where the selection and use of tools is required unit MEM18001 Use hand tools and unit MEM18002 Use power tools/hand held operations, should also be selected as appropriate.

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

Band: A

Unit Weight: 6

Pre-requisite Unit

MEM11011	Undertake manual handling
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information

Competency Field

Forging

Elements and Performance Criteria

Elements describe the essential outcomes.

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

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|---|---|-----|--|
| 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 verbal instructions from metallurgist or supervisor |
| | | | |
| 2 | Select and set up heat treatment equipment | 2.1 | Select appropriate equipment for the required heat treatment |
| | | 2.2 | Set up equipment according to SOPs and manufacturers' instructions |
| | | | |
| 3 | Work safely with hot metals | 3.1 | Demonstrate emergency procedures according to approved safety instructions and identify and follow safety signs |
| | | 3.2 | Use equipment according to specifications and SOPs |
| | | | |
| 4 | Heat treat material | 4.1 | Treat material to achieve required result, which may include preparation processes |
| | | 4.2 | Piece or batch load and unload material using equipment according to SOPs |
| | | 4.3 | Maintain correct temperature according to SOPs |

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, accessibility of the item, and local industry and regional contexts) are included.

- Equipment includes one (1) or more of the following:**
- gas
 - electric
 - oil fired furnaces
 - vacuum furnace
 - induction heating
 - kilns
 - heated baths
 - salt baths
 - specialised tongs/tools
 - lifting equipment

- Materials include one (1) or more of the following:**
- carbon steels
 - alloy steels
 - non-ferrous

- Preparation processes include one (1) or more of the following:**
- coatings and packings
 - preheating
 - soaking
 - quenching
 - tempering
 - annealing
 - normalising
 - carburizing
 - sintering

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM06003C Carry out heat treatment

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 MEM06003 Carry out heat treatment

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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
- assessing required heat treatment appropriate materials
- selecting, setting up and safely using appropriate equipment for heat treatment processes
- undertaking necessary preparation process and heat treating material to specifications working safely with hot metals at all times.

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)
- heat treatment work specifications
- treatment material features and characteristics
- heat treatment applications, equipment and processes
- emergency procedures
- material preparation, quenching, preheating requirements
- material condition during heat treating process
- safe loading and batch and/or piece loading of furnaces.

Assessment Conditions

- Assessors must:
 - have vocational competency in carrying out heat treatment 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 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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