



Australian Government

MEM19009 Perform investment procedures for lost wax casting process

Release: 1

MEM19009 Perform investment procedures for lost wax casting process

Modification History

Release 1. Supersedes and is equivalent to MEM19009B Perform investment procedures for lost wax casting process

Application

This unit of competency defines the skills and knowledge required to prepare investment flasks using manual and automatic equipment for jewellery casting procedures.

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

Band: A

Unit Weight: 1

Pre-requisite Unit

MEM11011	Undertake manual handling
MEM12024	Perform computations
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information
MEM18001	Use hand tools

Plus, one or more of the following

MEM07024	Operate and monitor machine and process
MEM13003	Work safely with industrial chemicals and materials

Competency Field

Jewellery and horological

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, job sheets or work instructions |
| | | | |
| 2 | Invest flask | 2.1 | Prepare and check materials |
| | | 2.2 | Select and prepare casting methods, tools and equipment |
| | | 2.3 | Assemble flask for casting |
| | | 2.4 | Mix investment and prepare curing stage |
| | | | |
| 3 | Operate 'lost wax' sequence and clean site | 3.1 | Evacuate 'low melt' wax by steam process |
| | | 3.2 | Position and store investment flask |
| | | 3.3 | Select and apply 'burn-out' procedure |
| | | 3.4 | Clean tools, equipment and site area |

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.

Casting methods include one (1) or more of the following:

- centrifugal casting
- vacuum casting

Tools and equipment include one (1) or more of the following:

- flasks and base
- investment
- scales
- mixers
- bowls
- vacuum

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM19009B Perform investment procedures for lost wax casting process

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 MEM19009 Perform investment procedures for lost wax casting process

Modification History

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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
- identifying and interpreting specifications, job sheets or work instructions in performing investment procedures for lost wax casting process
- checking pre-assembled wax for security, size and weight and selecting, checking and cleaning sprue and investment materials and recording weights
- calculating and weighing out proportions of investment material and water and selecting and assembling appropriate flask size
- performing mixing, vibrating and vacuum procedures and operating steamer and process to evaluate 'low melt' wax
- inspecting flasks for residue prior to burn-out, positioning, storing flask and selecting appropriate burn-out procedure and equipment, including inspecting and adjusting oven or kiln cavity
- cleaning investment equipment of residue and disposing in accordance with 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)
- procedures for checking built wax
- casting methods and equipment and processes
- sprue and investment tools, equipment and materials
- techniques for sprue or tree styles and selection and application of the processes
- selection of flask and components for specific casting processes
- procedures and computations for mixing proportions, time calculations, volume and weights
- appropriate gloss off and set time allowance prior to base removal
- requirements for curing and set stage
- sequence and values for time, temperature and cam settings

- steamer process
- suitability of flask and investment for burn-out
- sequence, procedures, adjustments for variables
- procedures for storage and positioning
- procedures for cleaning, storage and removal of materials and reasons for housekeeping functions
- recording procedures.

Assessment Conditions

- Assessors must:
 - have vocational competency in performing investment procedures for lost wax casting process 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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