



**Australian Government**

# **MEM19001 Perform jewellery metal casting**

**Release: 1**

# MEM19001 Perform jewellery metal casting

## Modification History

Release 1. Supersedes and is equivalent to MEM19001B Perform jewellery metal casting

## Application

This unit of competency defines the skills and knowledge required to perform jewellery metal casting using the 'lost wax' method of investment casting.

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

**Band: A**

**Unit Weight: 6**

## Pre-requisite Unit

MEM13004	Work safely with molten metals/glass
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information

## 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.
1 <b>Determine job requirements</b>	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, drawings, job sheets or work instructions

Elements describe the essential outcomes.

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

- |   |   |     |  |
|---|---|-----|--|
| 2 | <b>Prepare metals for casting</b>           | 2.1 | Select required metals and alloys  |
|   |   | 2.2 | Weigh out metals and alloys in correct wax-to-metal ratios   |
|   |   | 2.3 | Record data according to SOPs  |
| 3 | <b>Conduct pre-casting operations</b>       | 3.1 | Prepare equipment according to SOPs, including checking required inert gas supply, delivery and vacuum systems |
|   |   | 3.2 | Carry out required pre-heating and glazing   |
|   |   | 3.3 | Maintain temperature of invested flask   |
| 4 | <b>Melt jewellery metal and cast metals</b> | 4.1 | Apply protective coating, including borax, fluxes and inert gases to jewellery metal                           |
|   |   | 4.2 | Heat jewellery metal to achieve casting temperature  |
|   |   | 4.3 | Position burn-out flask  |
|   |   | 4.4 | Tap molten metal, making allowance for adequate solidification time  |
|   |   | 4.5 | Operate furnace in accordance with SOPs  |
| 5 | <b>Perform post-casting operations</b>      | 5.1 | Remove casting flask and store in a safe manner  |
|   |   | 5.2 | Clean, store and dispose of casting materials and consumables  |

## 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.

**Metals and alloys include one (1) or more of the following:**

- gold
- platinum
- palladium
- silver
- copper
- their alloys

**Equipment includes one (1) or more of the following:**

- resistance coils
- induction coils
- hand held torches fuelled by a variety of combinations of gas, propane, acetylene, air and oxygen

**Protective coatings include one (1) or more of the following:**

- borax
- fluxes
- inert gases

## Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM19001B Perform jewellery metal casting

## Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>