



**Australian Government**

# **MEM48003 Monitor nonferrous melting and casting processes**

**Release: 1**

## MEM48003 Monitor nonferrous melting and casting processes

### Modification History

Release 1. Supersedes and is equivalent to MSATCM303A Monitor non-ferrous melting and casting processes.

### Application

This unit of competency defines the knowledge and skills required to undertake the melting and casting of nonferrous alloys.

It applies where a technician will be required to monitor a nonferrous melting and casting operation, ensuring that correct quantities are used and correct procedures followed.

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

### Pre-requisite Unit

Nil

### Competency Field

Metallurgy

### Elements and Performance Criteria

| Elements                                         | Performance Criteria                                                                                                                                                                                                                                                |
|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Elements describe the essential outcomes.</i> | <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>                                                                                                                                                              |
| 1. Determine job requirements                    | 1.1 Follow standard operating procedures (SOPs)<br>1.2 Comply with work health and safety (WHS) requirements at all times<br>1.3 Use appropriate personal protective equipment (PPE) in accordance with SOPs<br>1.4 Identify job requirements from work information |
| 2. Identify specifications for required casting  | 2.1 Identify required material specifications<br>2.2 Identify mould requirements<br>2.3 Identify any special appropriate requirements                                                                                                                               |
| 3. Verify metal charges                          | 3.1 Select required components to give the required metal specification                                                                                                                                                                                             |

| Elements                                         | Performance Criteria                                                                                                                                                                                                                            |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Elements describe the essential outcomes.</i> | <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>                                                                                                                                          |
| to melting                                       | 3.2 Calculate required charge of each component<br>3.3 Recommend changes and/or additions to the charge<br>3.4 Monitor the preparation of the charge including checking for contaminants                                                        |
| 4. Monitor furnace operation                     | 4.1 Check that the furnace is in good operational condition and that appropriate lining is present<br>4.2 Identify need for maintenance and/or repairs and organise accordingly<br>4.3 Monitor a melt to ensure the product meets specification |
| 5. Monitor pouring of molten metal               | 5.1 Check pouring is to procedures<br>5.2 Take required samples for analysis                                                                                                                                                                    |
| 6. Control hazards                               | 6.1 Identify hazards in the metal melting and pouring process<br>6.2 Assess the risks arising from those hazards<br>6.3 Implement procedures to control those hazards in line with procedures and duty of care                                  |

## Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

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.

|                                                    |                                                                                                |
|----------------------------------------------------|------------------------------------------------------------------------------------------------|
| Moulds include:                                    | <ul style="list-style-type: none"> <li>• sand</li> <li>• die</li> <li>• investment.</li> </ul> |
| Material specification includes one or more of the | <ul style="list-style-type: none"> <li>• ferrous metals</li> <li>• ferrous alloys</li> </ul>   |

|                                                    |                                                                                                                                                                                                                                                  |
|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| following:                                         | <ul style="list-style-type: none"><li>• contaminants.</li></ul>                                                                                                                                                                                  |
| Contaminants include one or more of the following: | <ul style="list-style-type: none"><li>• non-specified metal</li><li>• rubber</li><li>• grease</li><li>• water</li><li>• paint and non-metallics</li><li>• closed containers or pipes</li><li>• pressure containers including aerosols.</li></ul> |

## Unit Mapping Information

Release 1. Supersedes and is equivalent to MSATCM303A Monitor non-ferrous melting and casting processes.

## Links

Companion Volume implementation guides are found in VETNet -

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