



Australian Government

MEM19011 Perform wax injection of moulds for lost wax casting process

Release: 1

MEM19011 Perform wax injection of moulds for lost wax casting process

Modification History

Release 1. Supersedes and is equivalent to MEM19011B Perform wax injection of moulds for lost wax casting process

Application

This unit of competency defines the skills and knowledge required to inject materials under pressure for investment and burn-out aspects within 'lost wax' casting procedures.

This unit applies primarily to organic and synthetic wax injection, but can include resin and plastic materials injected under pressure for investment and burn-out aspects within 'lost wax' casting procedures.

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

Band: A

Unit Weight: 2

Pre-requisite Unit

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	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

Elements describe the essential outcomes.

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

accordance with SOPs

1.4 Identify job requirements from specifications, job sheets or work instructions

2 **Perform wax injection of moulds**

2.1 Select appropriate wax material according to design specification requirements

2.2 Prepare injection tools and equipment

2.3 Prepare moulds

2.4 Carry out wax injection procedures

3 **Remove and inspect patterns**

3.1 Remove wax pattern without damage and inspect

3.2 Determine the action required when inspected wax patterns are imperfect and carry out the determined action

3.3 Store according to SOPs and secure and clean work 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.

Inspection includes checking for one (1) or more of the following:

- missing elements
- alignment of rubber mould
- air bubbles

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.

- shrinkage
- distortion

Actions to be taken for imperfect wax patterns include one (1) or more of the following:

- repair
- re-work
- recycle
- discard

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM19011B Perform wax injection of moulds 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 MEM19011 Perform wax injection of moulds for lost wax casting process

Modification History

Release 1. Supersedes and is equivalent to MEM19011B Perform wax injection of moulds for lost wax casting process

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 to select wax type according to wax, model and cavity specifications
- conducting measurements and preparing moulds, including rectifying inappropriate mould features
- completing injection and removing duplicated wax pattern
- repairing, re-working, recycling or discarding imperfect wax patterns as required.
- checking duplicate for compliance with master and specifications and identifying irregularities.

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)
- wax types and characteristics
- procedures for wax injection equipment and processes for the given values of time, temperature and pressure
- characteristics of moulds
- injection procedures
- minor variations and adjustments to processes and equipment situations
- undamaged wax duplicate removal techniques for a range of situations
- procedures for wax duplicate inspection
- common irregularities
- causes and remedies of imperfections
- procedures for safe cleaning, disposal and safe storage.

Assessment Conditions

- Assessors must:
 - have vocational competency in performing wax injection of moulds 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.

Links

Companion Volume implementation guides are found in VETNet -

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