



Australian Government

Department of Education, Employment and Workplace Relations

MEM19009B Perform investment procedures for lost wax casting process

Release: 1

MEM19009B Perform investment procedures for lost wax casting process

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers preparing investment flasks for jewellery casting.
------------------------	---

Application of the Unit

Application of the unit	<p>This unit applies to the preparation of investment flasks using manual and/or automatic equipment for jewellery casting procedures.</p> <p>Band: A</p> <p>Unit Weight: 1</p>
--------------------------------	---

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM12024A	Perform computations
	MEM13003B	Work safely with industrial chemicals and materials
	MEM18001C	Use hand tools

Prerequisite units		
Path 2	MEM07024B	Operate and monitor machine/process
	MEM12024A	Perform computations
	MEM18001C	Use hand tools

Employability Skills Information

Employability skills	This unit contains employability skills.
-----------------------------	--

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
---	--

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare investment materials	1.1. Sprue/tree materials are prepared/built, if necessary. 1.2. Assembled tree/materials are checked, if necessary. 1.3. Casting methods and equipment are selected appropriate to task. 1.4. Associated tools and equipment are prepared.
2. Invest flask	2.1. Flask is assembled for casting. 2.2. Investment is mixed correctly. 2.3. Curing stage is prepared.
3. Operate 'lost wax' sequence	3.1. 'Low melt' wax is evacuated by steam process, if necessary. 3.2. Investment flask is positioned/stored correctly. 3.3. 'Burn-out' procedure is selected and applied.
4. Decontaminate/clean site	4.1. Tools, equipment and site area are cleaned correctly.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
Look for evidence that confirms skills in: <ul style="list-style-type: none"> • reading and following routine task-related information • checking pre-assembled wax for security, size, and weight • selecting/checking/cleaning sprue and investment materials • selecting appropriate components • recording weights • selecting and assembling appropriate flask size • calculating and weighing out proportions of investment material and water • performing mixing, vibrating and vacuum procedures • operating steamer and process • inspecting flasks for residue prior to burn-out • selecting appropriate burn-out procedure/equipment

REQUIRED SKILLS AND KNOWLEDGE

- positioning/storing flask
- inspecting and adjusting oven/kiln cavity
- cleaning working area, and all tools and investing equipment of investment residue
- disposing of residue and materials

Required knowledge

Look for evidence that confirms knowledge of:

- procedures for checking built wax
- casting methods and equipment and processes
- sprue/investment/tools/equipment/materials
- techniques for sprue/tree styles and selection/application of the processes
- selection of flask and components for specific casting processes
- procedures and computations for mixing proportions, time calculations, volume and weights, etc.
- appropriate gloss off/set time allowance prior to base removal
- occupational health and safety requirements/issues
- requirements for curing/set stage
- sequence and values for time, temperature, and/or cam settings
- steamer process
- suitability of flask/investment for burn-out
- sequence, procedures, adjustments for variables
- procedures for storage and positioning
- procedures for cleaning, storage and/or removal of materials
- the reasons for appropriate/approved housekeeping functions
- recording procedures
- hazards and control measures, including housekeeping
- use and application of personal protective equipment
- safe work practices and procedures

Evidence Guide

EVIDENCE GUIDE	
<p>The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.</p>	
<p>Overview of assessment</p>	<p>A person who demonstrates competency in this unit must be able to perform investment procedures for 'lost wax' casting process. Competency in this unit cannot be claimed until all prerequisites have been satisfied.</p>
<p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</p>	<p>Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in new and different situations and contexts.</p>
<p>Context of and specific resources for assessment</p>	<p>This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.</p> <p>This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with performing investment procedures for 'lost wax' casting process or other units requiring the exercise of the skills and knowledge covered by this unit.</p>
<p>Method of assessment</p>	<p>Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.</p>

EVIDENCE GUIDE

Guidance information for assessment	
--	--

Range Statement**RANGE STATEMENT**

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Casting method and equipment	Centrifical and vacuum casting
-------------------------------------	--------------------------------

Associated tools and equipment	<ul style="list-style-type: none"> • Flasks and base • Investment • Scales • Mixers • Bowls • Vacuum
---------------------------------------	--

Unit Sector(s)

Unit sector	
--------------------	--

Co-requisite units

Co-requisite units	

Competency field

Competency field	Jewellery and horological
-------------------------	---------------------------