



Australian Government

Department of Education, Employment and Workplace Relations

MEM04007B Pour molten metal

Release: 1

MEM04007B Pour molten metal

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers manually pouring molten metal.
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Application of the Unit

Application of the unit	This unit applies to the manual pouring of molten metal as part of metal casting and moulding processes. Where lifting and moving of ladles requires the use of overhead cranes, applicable units should also be selected. Band: A Unit Weight: 4
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Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM13004B	Work safely with molten metals/glass

Employability Skills Information

Employability skills	This unit contains employability skills.
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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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for pouring molten metal	1.1. The condition of the mould is checked according to standard operating procedures. 1.2. The condition of the ladle is checked according to standard operating procedures. 1.3. The temperature of molten metal is checked for conformance to specification, and pouring method is sequenced to standard operating procedures. 1.4. The capacity of the required pour is identified against specification according to standard operating procedures.
2. Preheat or prepare ladle	2.1. The ladle is preheated/prepared to receive molten metal.
3. Transfer ladle to furnace	3.1. Safety clips are checked according to standard operating procedures. 3.2. The ladle is filled and transferred to the pouring area in accordance with standard operating procedures. 3.3. Additives are determined from specification and added to molten metal as required.
4. Maintain quality of metal as required	4.1. Slag/dross is removed where necessary. 4.2. The temperature is monitored as required. 4.3. Chemical analysis is undertaken and remedial action is applied as required to standard operating procedures.
5. Pour molten metal	5.1. Personnel in the immediate area of the metal pour are informed that pour is to take place and appropriate safety clothing and equipment is used as specified in standard operating procedures. 5.2. Metal is poured safely to specification and in accordance with standard operating procedures. 5.3. Metal is poured at an appropriate and continuous rate. 5.4. A test bar is poured in accordance with standard operating procedures as required.
6. Empty excess metal from ladle	6.1. Pigs are poured and tagged.
7. Return ladle	7.1. The ladle is emptied, cleaned and maintained according to standard operating procedures.

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:

- reading and following written instructions, standard operating procedures, specifications and standard test data sheets
- selecting and checking ladle
- preparing ladle for pouring
- transferring metal to ladle
- treating metal
- removing slag and dross
- sampling and testing molten metal
- pouring molten metal into moulds and pigs
- tagging pig metal
- using communication skills to effectively transfer skills and knowledge to employees

Required knowledge

Look for evidence that confirms knowledge of:

- types and pouring characteristics of metals
- types and characteristics of ladles
- procedures for maintaining condition and integrity of ladle
- procedures for safe handling and transference of molten metal
- metal treatments, applications and procedures for making additions to molten metal
- slag and dross removing procedures
- techniques for sampling and testing molten metal
- pouring procedures
- metal identification and tagging procedures
- use and application of personal protective equipment
- safe work practices and procedures
- hazards and control measures associated with pouring molten metal

Evidence Guide

EVIDENCE GUIDE

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.

Overview of assessment

A person who demonstrates competency in this unit must be able to pour molten metal. Competency in this unit cannot be Claimed until all prerequisites have been satisfied.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

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.

Context of and specific resources for assessment

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.

This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with pouring molten metal or other units requiring the exercise of the skills and knowledge covered by this unit.

Method of assessment

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.

Guidance information for

EVIDENCE GUIDE**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.

Ladle

Lip pour, tea pot, bottom pour, barrel, and bull ladles of varying capacity

Additives

Alloys, inoculants, spheroidisers, coagulants

Unit Sector(s)**Unit sector****Co-requisite units**

Co-requisite units		

Competency field

Competency field	Casting and moulding
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