



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **MEM04004B Prepare and mix sand for metal moulding**

**Release: 1**

## MEM04004B Prepare and mix sand for metal moulding

### Modification History

Not Applicable

### Unit Descriptor

<b>Unit descriptor</b>	This unit covers loading up a mixer, mixing the sand, taking test samples and interpreting the results, discharging the sand and cleaning the mixer.
------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------

### Application of the Unit

<b>Application of the unit</b>	<p>This unit applies to the mixing of moulding sand in continuous and batch type mills.</p> <p><b>Band: A</b></p> <p><b>Unit Weight: 4</b></p>
--------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------

### Licensing/Regulatory Information

Not Applicable

### Pre-Requisites

<b>Prerequisite units</b>		

## Employability Skills Information

<b>Employability skills</b>	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. Load mixer (mill/muller)	1.1. All pre start-up checks are performed safely and according to standard operating procedures. 1.2. Formula for sand mix is determined according to standard operating procedures. 1.3. Materials are measured and loaded according to formula specification.
2. Mix sand	2.1. Sand is mixed for correct time to specifications. 2.2. The performance of mixer and the condition of the sand is monitored. 2.3. Material supply is maintained. 2.4. Faults are reported.
3. Take and test samples	3.1. Sample is correctly extracted. 3.2. Test is applied in accordance with standard operating procedures. 3.3. Test results are compared against specifications. 3.4. Adjustments to formula/mix are made as required in accordance with standard operating procedures.
4. Discharge mixture	4.1. Load is charged correctly according to standard operating procedures. 4.2. Unwanted treated sand is disposed of according to standard operating procedures.
5. Clean mixer	5.1. Mixer is shut down to standard safety and operating procedures. 5.2. Mixer is cleaned 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 and standard operating procedures
- setting parameters for mixing

**REQUIRED SKILLS AND KNOWLEDGE**

- loading mixers
- mixing sand and monitoring the process
- sampling and testing mixed sand
- discharging sand
- closing down and cleaning
- using measurement skills for preparing and mixing sand within the scope of this unit

**Required knowledge**

Look for evidence that confirms knowledge of:

- characteristics, safe handling procedure and mixture applications of sand and binding agent
- moulding requirements
- mixers, applications, loading, operating and unloading procedures
- volumes, quantities, ratios and percentages
- sampling, testing and acceptance criteria for mixed sand
- procedures for cleaning and shutting down mixer
- environmental requirements for the disposal of unwanted sand
- use and application of personal protective equipment
- safe work practices and procedures
- hazards and control measures related to preparing and mixing sand for metal moulding

## 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.

<b>Overview of assessment</b>	A person who demonstrates competency in this unit must be able to prepare and mix moulding sand.
<b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b>	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.
<b>Context of and specific resources for assessment</b>	<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 mixing moulding sand or other units requiring the exercise of the skills and knowledge covered by this unit.</p>
<b>Method of assessment</b>	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.
<b>Guidance information for assessment</b>	

## 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.

<b>Materials</b>	Sand, silica, zircon, chromite, mixtures, water
<b>Faults</b>	Chemical ratios - acid, binder, water
<b>Mixer</b>	Batch and continuous mixers

## Unit Sector(s)

<b>Unit sector</b>	
--------------------	--

## Co-requisite units

<b>Co-requisite units</b>		

## Competency field

Competency field	Casting and moulding
------------------	----------------------