



**Australian Government**

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

# **PMC552003C Operate grinding equipment**

**Revision Number: 1**

## PMC552003C Operate grinding equipment

### Modification History

Not applicable.

### Unit Descriptor

<b>Unit descriptor</b>	This unit of competency covers the grinding and size reduction of raw materials, materials in process, product and scrap/recycled material. It involves monitoring the process, ensuring a safe work environment, rectifying problems and facilitating output changes.
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### Application of the Unit

<b>Application of the unit</b>	<p>This unit of competency applies to operators who are responsible for preparing materials for grinding; grinding materials and distributing ground materials.</p> <p>This competency is typically performed by operators working either independently or as part of a work team. At all times they would be liaising with other members of the team.</p>
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### Licensing/Regulatory Information

Not applicable.

### Pre-Requisites

<b>Prerequisite units</b>		

## Employability Skills Information

<b>Employability skills</b>	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 to grind materials	1.1. Check equipment for hazards, danger and isolation tags in accordance with standard operating procedures 1.2. Perform checks to ensure all doors, inspection openings and guards are in position and secure 1.3. Make adjustments to equipment settings to ensure conformance with standard operating procedures 1.4. Notify appropriate personnel of intention to start equipment 1.5. Conduct additional pre-start checks as required in accordance with standard operating procedures 1.6. Ensure an adequate supply of materials is available to meet production requirements
2. Grind materials	2.1. Start equipment in sequence in accordance with standard operating procedures 2.2. Monitor instrument/control panels and adjust as necessary to remain within specified operating parameters 2.3. Make physical inspections of plant and equipment at specified intervals to identify any anomalies in standard operating procedures 2.4. Maximise product throughput and efficiency to maintain target parameters 2.5. Communicate with appropriate personnel regarding the status of operations in line with enterprise requirements 2.6. Employ safe working practices which conform with occupational health and safety (OHS) and enterprise requirements 2.7. Shut down equipment in accordance with procedures and complete required records
3. Rectify routine problems	3.1. Identify the range of faults that can occur during the operation 3.2. Determine and rectify faults caused by procedures 3.3. Identify and rectify equipment failure causes in accordance with procedures 3.4. Make sure appropriate records and log books of equipment operations are maintained to meet procedures 3.5. Identify non-routine problems and report to

ELEMENT	PERFORMANCE CRITERIA
	designated person
4. Distribute ground product	4.1. Distribute ground materials to their correct silo/storage area in accordance with standard operating procedures 4.2. Monitor silo/storage areas to ensure compliance with enterprise storage quality/quantity requirements.
5. Control hazards	5.1. Identify hazards in the grinding work area 5.2. Assess the risks arising from those hazards 5.3. Implement measures to control those risks in line with procedures 5.4. Shut down in an emergency as required

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

#### Required skills

Required skills include:

- recognising process conditions which will lead to out of specification production and taking appropriate action
- implementing the enterprise's standard procedures and work instructions and relevant regulatory requirements within appropriate time constraints and in a manner relevant to the operation of grinding equipment
- reading and numeracy is required to the level of interpreting workplace documents and technical information

#### Required knowledge

Required knowledge includes:

- startup and shutdown processes
- construction and limitations of the grinding equipment and conditions
- grinding fundamentals
- out of specification situations
- physics and chemistry (where appropriate) of process
- principles of operation of process
- control philosophy of process
- distinguish between causes of faults such as:
  - raw material variations
  - mechanical abnormalities
  - electrical/instrument reading variations

## 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

The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency.

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

It is essential that the equipment and process be understood and that the importance of critical material properties is known.

Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in reporting the condition to the appropriate individual.

Consistent performance at the required standard should be demonstrated. In particular look to see that:

- types of materials to be ground and their additives are identified
- individual material feed and distribution systems are understood
- OHS and safe work practices are followed
- signage, tags and isolation procedures are followed
- basic maintenance and inspection practices are carried out.

Competence must be demonstrated in the operation of all ancillary equipment to the level required for this unit of competency.

#### Context of and specific resources for assessment

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations.

Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. A bank of scenarios/case studies/what ifs and questions will be required to probe

<b>EVIDENCE GUIDE</b>	
	the reasoning behind observable actions.
<b>Method of assessment</b>	Individual enterprises may choose to add prerequisites and co-requisites relevant to their processes.
<b>Guidance information for assessment</b>	Assessment processes and techniques must be culturally appropriate and appropriate to the language and literacy capacity of the candidate and the work being performed.



## 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.

#### Procedures

All operations are performed in accordance with standard procedures and work instructions.

#### Ground materials

Ground materials may include:

- quarried materials
- cement clinker
- lime
- ceramics and clay
- ground minerals
- glass
- concrete waste
- fibre cement

#### Equipment and unit operations

All such items of equipment and unit operations which form part of the grinding system. These may include:

- ball mills
- hammer mills
- roller mills
- pans
- edge mills
- other equipment integral to the operation of the grinding system

#### Typical problems

Typical problems may include:

- out of specification grinding media
- variations in temperature and moisture
- variations in feed
- product discharge problems

#### OHS

The identification and control of hazards and the application of OHS is to be in accordance with current, applicable legislation and regulations, and company procedures. All work is carried out at all

**RANGE STATEMENT**

	times in accordance with these requirements
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**Unit Sector(s)**

<b>Unit sector</b>	Operational/technical
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**Competency field**

<b>Competency field</b>	
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**Co-requisite units**

<b>Co-requisite units</b>		