



**Australian Government**

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

# **PMC553010C Process raw meal into product**

**Revision Number: 1**

## PMC553010C Process raw meal into product

### Modification History

Not applicable.

### Unit Descriptor

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| <b>Unit descriptor</b> | This unit of competency covers the preparation and processing (in a large plant) of raw meal through a kiln and distribution of the cement/lime product to storage. It involves conducting pre-start checks, operating and monitoring the process, rectifying operational problems and facilitating output changes. |
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### Application of the Unit

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| <b>Application of the unit</b> | <p>This unit of competency applies to operators who are responsible for preparing and processing raw meal into cement and/or lime product.</p> <p>This unit does NOT require the operation of a central control panel.</p> <p>This competency is typically performed by an experienced operator, leading hand or supervisor. At all times they would be liaising and cooperating with other members of the team.</p> |
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### Licensing/Regulatory Information

Not applicable.

### Pre-Requisites

|                           |            |                                 |
|---------------------------|------------|---------------------------------|
| <b>Prerequisite units</b> |            |                                 |
|                           | PMC552010C | <i>Operate a calcining kiln</i> |

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|---------------------------|--|--|
| <b>Prerequisite units</b> |  |  |
|                           |  |  |

### Employability Skills Information

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| <b>Employability skills</b> | This unit contains employability skills. |
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### Elements and Performance Criteria Pre-Content

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| 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 processing        | 1.1. Notify/keep informed all relevant people about the current status operations and any intention to make changes<br>1.2. Perform all pre-start checks in accordance with standard operating procedures<br>1.3. Set up and configure equipment startup function complying with procedures<br>1.4. Check plant/equipment settings against operating parameters as identified in standard operating procedures<br>1.5. Load raw materials in accordance with work instructions<br>1.6. Start up plant/equipment in accordance with procedures |
| 2. Process raw meal              | 2.1. Commence/continue process operations in accordance with specified operating procedures<br>2.2. Monitor and check against target parameters instrument/ control panels for variations, fluctuations or trends<br>2.3. Maximise throughput of system while meeting quality target parameters<br>2.4. Check and adjust ancillary equipment as required  |
| 3. Distribute product to storage | 3.1. Monitor and perform necessary adjustments to discharge rate and temperature as required<br>3.2. Monitor the distribution transport system for efficiency and spillages and take appropriate action as required<br>3.3. Monitor the distribution of product to the correct storage area and level of product in that area, and redirect as required   |
| 4. Respond to problems           | 4.1. Identify possible routine and non-routine problems in the equipment or process<br>4.2. Determine problems needing action<br>4.3. Determine possible fault causes<br>4.4. Rectify problem using appropriate solution within area of responsibility<br>4.5. Follow through items initiated until final resolution has occurred<br>4.6. Report problems outside area of responsibility to   |

| <b>ELEMENT</b>                       | <b>PERFORMANCE CRITERIA</b>   |
|--------------------------------------|---|
|                                      | designated person   |
| 5. Shut down equipment               | 5.1.Ensure line is clear of all product and left ready for startup<br>5.2.Shut down equipment in accordance with procedures<br>5.3.Complete appropriate records and logs<br>5.4.Shut down equipment in an emergency situation |
| 6. Prepare equipment for maintenance | 6.1.Isolate equipment in accordance with procedures<br>6.2.Remove any broken materials safely<br>6.3.Ensure area is clear and safe for maintenance  |
| 7. Control hazards                   | 7.1.Identify hazards in kiln work area<br>7.2.Assess the risks arising from those hazards<br>7.3.Implement measures to control those risks in line with procedures and duty of care   |

## 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 variance from specifications and standard operating procedures and determining an appropriate action that is consistent with operating guidelines
- 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 the process
- reading and numeracy to interpret workplace documents and technical information

#### Required knowledge

Required knowledge includes:

- operation procedures of the kiln and kiln system
- kiln chemistry, chemistry and physics of cement/lime making processes (as appropriate)
- isolation procedures
- operational processes and functions, including startup and shutdown processes
- composition and nature of raw materials and finished product
- construction and limitations of the equipment
- out of specification situations
- material feed, cooling and distribution systems
- distinguish between causes of faults such as:
  - equipment fault
  - variations in raw materials
  - variations in feed rates and preparation
  - kiln quality and optimisation practices
  - types of kiln fuels and reactions
  - acceptable ranges of variations

## Evidence Guide

| <b>EVIDENCE GUIDE</b>   |  |
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| <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> |  |
| <b>Overview of assessment</b>   | <p>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.</p>  |
| <b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b>   | <p>It is essential that the process be understood and that the importance of critical material properties, settings and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.</p> <p>Consistent performance should be demonstrated. In particular look to see that:</p> <ul style="list-style-type: none"> <li>• temperatures are maintained within limits</li> <li>• quality is monitored to minimise wastage</li> <li>• process measurements are continually made or observed.</li> </ul> <p>Competence must be demonstrated in the operation of all ancillary equipment to the level required for this unit of competency.</p> |
| <b>Context of and specific resources for assessment</b>   | <p>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.</p> <p>Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.</p> <p>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 the reasoning behind observable actions.</p>   |
| <b>Method of assessment</b>   | <p>In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.</p> <p>Individual enterprises may choose to add prerequisites</p>  |

| <b>EVIDENCE GUIDE</b>                      |   |
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|  | 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

| <b>RANGE STATEMENT</b>   |  |
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| <p>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.</p> |  |
| <b>Procedures</b>  | All operations are performed in accordance with standard procedures and work instructions  |
| <b>Equipment and operations</b>  | <p>Equipment and operations may include:</p> <ul style="list-style-type: none"> <li>• instrument panels (local)</li> <li>• measuring and recording equipment</li> <li>• communication equipment</li> <li>• hand tools</li> <li>• emergency stop buttons and lanyards</li> <li>• personal protective equipment</li> <li>• grinding mills</li> <li>• pneumatic conveying systems</li> <li>• slurry pumps</li> <li>• dust collectors</li> <li>• mixing and blending silos</li> <li>• vibrating screens</li> <li>• kilns</li> <li>• bulk storage silos</li> <li>• heat recovery systems</li> </ul> |
| <b>Typical problems</b>  | <p>Typical problems may include:</p> <ul style="list-style-type: none"> <li>• equipment malfunctions</li> <li>• temperature fluctuations</li> <li>• quality of product</li> <li>• material/feed variations</li> <li>• spillages and leakages</li> <li>• inaccuracies in blending and proportioning of raw materials</li> <li>• out of specification moisture content of raw materials/slurry</li> <li>• variations in temperature, time and cooling rates</li> <li>• variations in feed rates or quantities</li> </ul>   |

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| <b>RANGE STATEMENT</b>                      |   |
|   | <ul style="list-style-type: none"> <li>vibration</li> </ul>   |
| <b>Occupational health and safety (OHS)</b> | The identification and control of hazards and the application of OHS are to be in accordance with current, applicable legislation and regulations, and company procedures. All work is carried out at all times in accordance with these requirements |

**Unit Sector(s)**

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

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

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| <b>Co-requisite units</b> |  |  |
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