



**Australian Government**

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

# **PMC553000C Set up and tune a process**

**Revision Number: 1**

## PMC553000C Set up and tune a process

### Modification History

Not applicable.

### Unit Descriptor

<b>Unit descriptor</b>	This unit of competency covers the setting up and tuning of equipment or a process. It involves preparing equipment, performing routine checks, monitoring operations, making adjustments and dealing with non-routine problems.
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### Application of the Unit

<b>Application of the unit</b>	<p>This unit of competency applies to operators or technicians who are responsible for setting up a process for operation and making adjustments to ensure it is operating well.</p> <p>The unit includes setting up and tuning equipment for startup, job change and equipment changes in preparation for production.</p> <p>This unit assumes that the person doing the set up has the knowledge and skills to operate the process being set up.</p> <p>This competency is typically performed by an experienced operator, leading hand or supervisor.</p> <p>It does NOT include setting up and tuning processes covered by:</p> <ul style="list-style-type: none"> <li>• <i>PMC553040C Set up and optimise glass forming process</i></li> <li>• <i>PMC553041C Set up and optimise glass furnace process</i></li> <li>• <i>PMC553042C Set up and optimise cutting and stacking process.</i></li> </ul>
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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 for equipment/change parts installation	1.1. Identify all safety and emergency procedures 1.2. Shut down equipment in accordance with procedures/work instructions and manufacturer's specifications 1.3. Isolate equipment according to procedures/work instructions 1.4. Remove ancillary equipment in accordance with procedures/work instructions and manufacturer's specifications 1.5. Complete records and logs for removal of equipment or change parts
2. Prepare the process for production	2.1. Consult the production schedule to determine the product to be manufactured 2.2. Ensure that the raw materials are available as required 2.3. Ensure that the equipment/change parts, ancillaries and fixtures are available as required 2.4. Perform pre-installment equipment preparation according to procedures/work instructions 2.5. Ensure that the equipment is in a safe condition for use
3. Set up process	3.1. Perform checks and tests to product and equipment specifications 3.2. Ensure alignment of all equipment according to product specifications and procedures/work instructions 3.3. Ensure that process/equipment is set up as required for the production schedule
4. Tune the process	4.1. Monitor operation and compare with standard operating procedures for appropriate operation 4.2. Identify any deviation from standard performance 4.3. Identify the cause of the deviation and take action 4.4. Make adjustments to the equipment settings, process conditions or raw materials to bring production into specification 4.5. Continue monitoring operation and making adjustments until product/equipment is within specification.
5. Respond to problems	5.1. Identify possible routine and non-routine problems

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
	in the equipment or process 5.2. Determine problems needing action 5.3. Determine possible fault causes 5.4. Rectify problem using appropriate solution within area of responsibility 5.5. Report problems outside area of responsibility to designated person
6. Control hazards	6.1. Identify hazards from the job to be done 6.2. Identify other hazards in the work area 6.3. Assess the risks arising from those hazards 6.4. Implement measures to control those risks in line with procedures

## 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 and situations that will lead to out of specification production
- implementing the enterprise's procedures 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:

- nature of the product
- setup and tuning of all equipment
- startup and shutdown processes
- construction and limitations of the equipment
- out of specification situations
- quality problems
- distinguish between following causes of problems:
  - raw materials
  - mechanical
  - electrical/instrument

## Evidence Guide

<b>EVIDENCE GUIDE</b>	
<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><b>Overview of assessment</b></p>	<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>
<p><b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b></p>	<p>It is essential that the equipment 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>• setup/tuning are completed to specifications and within timeframe</li> <li>• critical process parameters such as temperature and pressures are maintained within limits</li> <li>• quality is monitored to minimise wastage</li> <li>• startup and shutdown occurs first time</li> <li>• signals and alarms are responded to immediately</li> <li>• process measurements are continually made or observed</li> <li>• adjustments made are completed in a timely manner in accordance with work instructions.</li> </ul> <p>Competence must be demonstrated in the operation of all ancillary equipment to the level required for this competency unit.</p>
<p><b>Context of and specific resources for assessment</b></p>	<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</p>

<b>EVIDENCE GUIDE</b>	
	competency components. A bank of scenarios/case studies/what ifs and questions will be required to probe the reasoning behind observable actions.
<b>Method of assessment</b>	This unit may be assessed concurrently with other relevant units.
<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>	
<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>Manufactured mineral products</b>	<p>Manufactured mineral products may include:</p> <ul style="list-style-type: none"> <li>• clay and ceramics</li> <li>• concrete</li> <li>• concrete products</li> <li>• ceramic crucibles</li> <li>• cement</li> <li>• fibre cement</li> <li>• plasterboard</li> <li>• ground minerals</li> <li>• other manufactured mineral products processes</li> </ul>
<b>Tools and equipment</b>	<p>Tools and equipment may include:</p> <ul style="list-style-type: none"> <li>• changeover parts and equipment</li> <li>• computers</li> <li>• measuring and recording equipment</li> <li>• communication equipment</li> <li>• hand tools</li> <li>• safety clothing and equipment</li> </ul>
<b>Plant data</b>	<p>Plant data may include:</p> <ul style="list-style-type: none"> <li>• test results</li> <li>• instrument/control panel information</li> <li>• data from physical senses (sight, sound and hearing)</li> <li>• temperatures, pressures, material flow and discharge rates and effects</li> <li>• variations to chemical reactions/material modifications</li> </ul>
<b>Typical problems include:</b>	<p>Typical problems may include:</p> <ul style="list-style-type: none"> <li>• raw materials feed</li> </ul>

<b>RANGE STATEMENT</b>	
	<ul style="list-style-type: none"> <li>• equipment alignment</li> <li>• analysis of all plant data including test results, control instrument data and other observations</li> <li>• control of temperature within specification</li> <li>• product quality</li> <li>• equipment speed</li> <li>• taking corrective action</li> </ul>

### 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>		