Australian Government

Department of Education, Employment and Workplace Relations

# PMBPROD308B Take a machine out of production

**Revision Number: 1**

# PMBPROD308B Take a machine out of production

## Modification History

Not applicable.

## Unit Descriptor

**Unit descriptor**
This competency covers long term shutdown of equipment and the solving of problems. Long term shutdown is done for maintenance or other requirements of a 'cold' machine.

## Application of the Unit

**Application of this unit**
This competency is typically performed by advanced operators applying knowledge of machines and their controls, materials and production processes to safely shutdown equipment, to standard requirements. This is more than just a routine shutting down of the equipment and typically would only be undertaken if the machine was being shut down for maintenance, being taken out of production for a period or for a holiday shut down period or even for mothballing of an item.
This does not apply to a routine production shut down which is included in the relevant unit.

## Licensing/Regulatory Information

Not applicable.

# Pre-Requisites

**Prerequisites**
This unit has **no** prerequisites.

# Employability Skills Information

**Employability Skills**
The required outcomes described in this unit contain applicable Employability Skills. The Employability Skills Summary of the qualification(s) in which this unit is packaged will assist in identifying Employability Skill requirements.

# Elements and Performance Criteria Pre-Content

| **ELEMENT**<br>Elements describe the essential outcomes of a unit of competency | **PERFORMANCE CRITERIA**<br>Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide. |
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# Elements and Performance Criteria

| **ELEMENT**<br>ELEMENT | **PERFORMANCE CRITERIA**<br>Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide. |
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| 1. Take over operation of the machine. | 1.1 Arrange handover from the operator (if necessary).<br>1.2 Determine type and reason for shutdown.<br>1.3 Implement measures to control identified hazards in line with procedures and duty of care.<br>1. 4 Notify relevant associated personnel. |
| 2. Perform long-term shutdown. | 2.1 Stop material feed,<br>2.2 Purge, using appropriate materials as required.<br>2.3 Switch off ancillaries as required.<br>2.4 Make required adjustments to ensure the safety of machine and materials.<br>2.5 Isolate, lock out and make machine safe for personnel, leave with appropriate tags or notices.<br>2.6 Complete relevant documentation. |
| 3. Perform post-shutdown preventive maintenance and cleanup after long-term shutdown. | 3.1 Clean all components as required.<br>3.2 Apply required surfaces treatments<br>3.3 Leave all parts in required condition.<br>3.4 Confirm all isolations have been done.<br>3.5 Pack/process any remaining goods/ product and label as required.<br>3.6 Sort material that can be salvaged from waste and arrange reprocessing/disposal to procedures.<br>3.7 Ensure area is clean and clear, ready for restarting of the machine |
| 4. Anticipate and solve problems | 5.1 Recognise a problem or a potential problem.<br>5.2 Determine problems needing priority action.<br>5.3 Refer problems outside area of responsibility to appropriate person, with possible causes.<br>5.4 Seek information and assistance as required to solve problems<br>5.5 Solve problems within area of responsibility<br>5.6 Follow through items initiated until final resolution has occurred. |

# Required Skills and Knowledge

This describes the essential skills and knowledge and their level required for this unit.
Application of the knowledge of equipment and process sufficient to recognise equipment conditions which may lead to out of specification production. For example purging compound left in cylinder can lead to lamination defect
Knowledge and ability to implement organisation procedures and relevant regulatory requirements, within appropriate time constraints and work standards.
Application of the knowledge of managing risks using the hierarchy of controls applied to machine shutdown operations. Application of approved hazard control and safety procedures and the use of PPE in relation to handling materials, equipment operation and cleanup.
Knowledge of and skills in equipment shutdown operations sufficient for effective and efficient performance and solving of problems associated with the job, including:

- machine construction, component parts ,structure, functions and general operating principles
- machine safety interlocks and systems (including limit switches, overstroke control systems, hydraulic temperature control, material temperature control, machine guards, nozzle purge guard, mould protection systems, ejection limit switches)
- production cycle/process/sequence and the effect ofvariations to the different systems/products
- characteristics of materials and behaviour in relation to heat, pressure, flow rate and time
- machine controls, their identification and function, includes basic controls, open loop, closed loop, shot size and correction capacity, speed, screw position, pressure, clamp pressure, time, screw speed, screw back pressure, screw back time, melt decompress position, sprue break
- differences between analogue controls, digital controls, and microprocessor based process controls.
- measuring instruments and their function: levelling, temperature sensing devices, thermocouples and pyrometers, transducers, thermometers, pressure and vacuum gauges, flow meters
- waste management and importance of non-conforming materials.

Competence also includes the ability to:

- plan own work, including predicting consequences and identifying improvements
- identify and describe own role and role of others involved directly in equipment shutdown operations
- identify when assistance is required to solve problems.

**Language**, **literacy and numeracy requirements**
Literacy is required to the level of being able to read and interpret technical specifications and production schedules and specifications.
Verbal communication is required to the extent necessary to instruct the operator.
An appreciation of numbers is also required to the extent needed to set and interpret numeric data.

# Evidence Guide

The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, the range statement and the assessment guidelines for this training package.

**Overview of assessment**

A holistic approach should be taken to the assessment.

Assessors must be satisfied that the person can consistently perform the unit as a whole, as defined by the Elements, Performance Criteria and skills and knowledge.

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

It is essential that competence is demonstrated in the knowledge and skills defined in this unit. These may include the ability to:

- identify the key activities involved in performing a shutdown in relation to the specific process and machinery involved
- make adjustments to the process as required
- identify and take appropriate action on problems and potential problems

Consistent performance should be demonstrated. For example, look to see that:

- the shutdown is done in an efficient manner, to standard requirements
- all safety procedures are always followed.

**Assessment method and context**

Assessment will occur on an industrial equipment shutdown and will be undertaken in a work-like environment.

Competence in this unit may be assessed:

- by using an appropriate equipment requiring long term shutdown
- in a situation allowing for the generation of evidence of the ability to respond to problems
- by using a suitable simulation and/or a range of case studies/scenarios
- through a combination of these techniques.

In all cases it is expected that practical assessment will be combined with targeted questioning to assess the underpinning knowledge and theoretical assessment will be combined with appropriate practical/simulation or similar assessment. Assessors need to be aware of any cultural issues that may affect responses to questions.

Assessment processes and techniques must be culturally appropriate and appropriate to the oracy, language and literacy capacity of the assessee and the work being performed.

**Specific resources for assessment**

This section should be read in conjunction with the Range Statement for this unit of competency. Resources required include suitable access to an operating plant or equipment that allows for appropriate and realistic simulation. A bank of case studies/scenarios and questions will also be required to the extent that they form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunchroom. No other special resources are required.

Access must be provided to appropriate learning and/or assessment support when required. Where applicable, physical resources should include equipment modified for people with disabilities.

# 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. Add any 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. Where reference is made to industry codes of practice, and/or Australian/international standards, the latest version must be used.

**Context**

This competency applies to long term shutdown of equipment within the plastics, rubber and cablemaking industries. A long-term stop is where the machine needs to be, or will become, 'cold'.

**Procedures**

All operations are performed in accordance with procedures.

Procedures include all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards.

**Ancillaries**

Ancillaries includes chillers and heaters.

**Tools and equipment**

This competency includes use of equipment and tools such as:

- hand carts and trolleys
- hoists/lifting equipment not requiring any special permits or licences
- hand tools used in the process
- relevant personal protective equipment.

**Hazards**

Typical hazards include:

- spills dusts/vapours
- slip and fall, particularly due to spilt polymer granules
- temperature
- hazardous materials
- manual handling hazards
- mechanical hazards.

**Problems**

Anticipate and solve problems means resolve a wide range of routine and non-routine problems, using knowledge of equipment and materials to develop solutions to problems which do not have a known solution/s in the procedures.

Typical process and product problems may include:

- cycle interruptions
- degradation of materials
- cooling and solidification of compounds
- rusting and corrosion of moulds put in storage
- clearing jams
- damage to equipment.

Appropriate action for solving problems outside area of responsibility may be reporting to an appropriate person.

Appropriate action for solving problems within area of responsibility includes asking questions and seeking assistance from appropriate persons/sources.

**Variables**

Key variables to be monitored include:

- temperature
- fill rate
- screw RPM
- speed
- brakes
- stopping distance.
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# Unit Sector(s)

Not applicable.