



Australian Government

Department of Education, Employment and Workplace Relations

PMAOPS217B Operate wet milling equipment

Revision Number: 1

PMAOPS217B Operate wet milling equipment

Modification History

Not applicable.

Unit Descriptor

| | |
|------------------------|---|
| Unit descriptor | <p>This competency covers the operation of wet milling equipment as found in plants manufacturing paint and other materials. It includes starting up and monitoring the performance of the equipment under supervision, and shutting down the equipment in an emergency, if instructed to do so.</p> <p>The wet milling equipment may be vertical or horizontal mills, and may incorporate rolls, balls or beads as the milling medium.</p> |
|------------------------|---|

Application of the Unit

| | |
|--------------------------------|--|
| Application of the unit | <p>The operator would:</p> <ul style="list-style-type: none">• be aware of and contribute to a safe working environment• identify and report operational problems to their supervisor/control room operator• contribute to plant optimisation• execute all routine activities including process monitoring, sampling, planning and maintenance (in accordance with position description). <p>Generally the operator would be part of a team during start up and shut down procedures and would be expected to be capable of demonstrating competence in all parts of this unit. At all times they would be liaising and cooperating with other members of the team.</p> <p>This unit does not require the operation of a central control panel.</p> |
|--------------------------------|--|

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

| | | |
|---------------------------|--|--|
| Prerequisite units | | |
|---------------------------|--|--|

Employability Skills Information

| | |
|-----------------------------|--|
| Employability skills | 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. Prepare for work. | 1.1. Identify work requirements 1.2. Identify and control hazards 1.3. Coordinate with appropriate personnel |
| 2. Start up mill. | 2.1. Perform pre-start-up checks 2.2. Liaise with other team members and control room operator on the intended function 2.3. Confirm raw materials are available and correct 2.4. Prepare pre-mixer and introduce raw materials to pre-mixer (if required) 2.5. Start up the mill as needed 2.6. Build operating rate steadily, checking expected performance criteria at various stages 2.7. Bring to specified conditions within specified time. |
| 3. Monitor milling operation. | 3.1. Monitor and observe mill operating condition, pressures and temperatures 3.2. Recognise observations which differ from normal operating parameters and requirements 3.3. Take appropriate action to maintain correct operating parameters 3.4. Identify faults and initiate repair or report as required 3.5. Monitor life of beads (if applicable) and/or condition of rollers/balls (if applicable). |
| 4. Shut down and start up milling equipment. | 4.1. Determine type of shutdown required 4.2. Check for related work or other affected plant to allow for coordination of activities and give advance warning where possible 4.3. Check and satisfy all permit requirements before equipment is brought back on line 4.4. Monitor and report equipment performance to control operations 4.5. Complete logs recording the details of the work conducted to provide a historical record of the equipment operation. |
| 5. Isolate and de-isolate plant. | 5.1. Isolate plant 5.2. Make safe for required work 5.3. Check plant is ready to be returned to service 5.4. Prepare plant for return to service. |

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills

- efficient and effective operation of plant/equipment
- hazard analysis
- completing plant records
- communication
- problem solving.
- Ability to distinguish between causes of problems/alarms/fault indications such as:
- equipment malfunction, including consequences and potential for escalation
- plant not performing to design
- bead life, roller/ball wear or adjustment (as applicable).

Required knowledge

Demonstration of competence in this unit must include knowledge of:

- all items on a schematic of the mill system and the function/s of each
- principles of milling equipment operation
- process and product variables
- bead life (if beads are used in process).
- physics and chemistry relevant to the process unit
- process parameters and limits, eg temperature, pressure, flow, pH
- duty of care obligations
- hierarchy of control
- communication protocols, eg radio, phone, computer, paper, permissions/authorities
- routine problems, faults and their resolution
- relevant alarms and actions
- plant process idiosyncrasies
- correct methods of starting, stopping, operating and controlling mill
- corrective action appropriate to the problem cause
- function and troubleshooting of major components and their problems
- types and causes of problems within operator's scope of skill level and responsibility.

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, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

Assessment of this unit should include demonstrated competence on actual plant and equipment in a work environment. 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. Assessment will occur over a range of situations that will include disruptions to normal, smooth operation.

Simulation may be required to allow for assessment of parts of this unit. Simulation should be based on the actual plant and will include walk-throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios and role plays.

This unit of competency requires a significant body of knowledge which will be assessed through questioning and the use of what-if scenarios both on the plant (during demonstration of normal operations and walk-throughs of abnormal operations) and off the plant.

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

Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action. The emphasis should be on the ability to stay out of trouble rather than on recovery from a disaster.

Consistent performance should be demonstrated. In particular look to see that:

- early warning signs of equipment/processes needing attention or with potential problems are recognised
- the range of possible causes can be identified and analysed and the most likely cause determined
- appropriate action is taken to ensure a timely return to full performance
- obvious problems in related plant areas are recognised and an appropriate contribution made to their solution

| EVIDENCE GUIDE | |
|---|--|
| | <ul style="list-style-type: none">• pre-start checks are made to ensure equipment is lined up to the plant in accordance with procedures and/or manufacturers specifications <p>These aspects may be best assessed using a range of scenarios/case studies/what-ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations that may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.</p> |
| 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. A bank of scenarios/case studies/what-ifs will be required as will a bank of questions that will be used to probe the reasoning behind the observable actions. |
| Method of assessment | In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units. |
| Guidance information for assessment | 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. |

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. 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.

| | |
|---------------------------------------|--|
| Codes of practice/ standards | Where reference is made to industry codes of practice, and/or Australian/international standards, the latest version must be used. |
| Context | <p>This unit of competency includes various types of wet milling equipment (select the types relevant to your plant):</p> <ul style="list-style-type: none"> • vertical • horizontal • bead mills • roll/ball-type mills. |
| Ancillary equipment | <p>This unit also covers ancillary equipment which form part of the wet milling system. For your plant this may include (select relevant items):</p> <ul style="list-style-type: none"> • pre-mix vessels • coolers, cooling jackets and heat exchangers • pumps • vessels, tanks • piping systems • valves and flanges • sumps and drains. |
| Problems | <p>Typical problems for your plant may include:</p> <ul style="list-style-type: none"> • condition and life of beads (if applicable) • condition of rollers/balls (if applicable) • cooling system fouling • blocked filters or piping • high/low levels • loss of process cooling resulting in high process temperatures • equipment failure or shutdown resulting in loss of feed to process • excess/unexpected sand production • composition changes. |
| Start up shut down as required | <p>Start up shut down as required includes:</p> <ul style="list-style-type: none"> • start up and shut down to/from normal operating conditions • start up and shut down to/from isolated, cold, empty |

| RANGE STATEMENT | |
|---|---|
| | <ul style="list-style-type: none"> all other conditions experienced on the plant. <p>ie from any condition to any condition experienced on the plant.</p> |
| Appropriate action | <p>Appropriate action includes:</p> <ul style="list-style-type: none"> determining problems needing action determining possible fault causes rectifying problem using appropriate solution within area of responsibility following through items initiated until final resolution has occurred reporting problems outside area of responsibility to designated person. |
| Procedures | <p>Procedures may be written, verbal, computer-based or in some other form. They include:</p> <ul style="list-style-type: none"> all work instructions standard operating procedures formulas/recipes batch sheets temporary instructions any similar instructions provided for the smooth running of the plant. <p>For the purposes of this Training Package, 'procedures' also includes good operating practice as may be defined by industry codes of practice (eg Responsible Care) and government regulations.</p> |
| Health, safety and environment (HSE) | <p>All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or Federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between Performance Criteria and HSE requirements, the HSE requirements take precedence.</p> |

Unit Sector(s)

| | |
|--------------------|-----------------------|
| Unit sector | Operational/technical |
|--------------------|-----------------------|

Competency field

| | |
|------------------|--|
| Competency field | |
|------------------|--|

Co-requisite units

| | | |
|--------------------|--|--|
| Co-requisite units | | |
|--------------------|--|--|