



**Australian Government**

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

# **FDFOP2034A Operate an evaporation process**

**Revision Number: 1**

## FDFOP2034A Operate an evaporation process

### Modification History

Not applicable.

### Unit Descriptor

|                        |                                                                                                                                   |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| <b>Unit descriptor</b> | This unit of competency covers the skills and knowledge required to set up, operate, adjust and shut down an evaporation process. |
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### Application of the Unit

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Application of the unit</b> | <p>This unit has application in a food processing environment. It typically targets the production worker responsible for applying basic operating principles to the operation and monitoring of an evaporation process and associated equipment.</p> <p>When operators are required to perform batch or product changeover procedures as part of this work process, the procedures should be the application of this unit. Where more detailed changeovers are carried out, FDFOP2011A Conduct routine maintenance, should be selected.</p> |
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### Licensing/Regulatory Information

Not applicable.

### Pre-Requisites

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

|                                                                   |                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 the evaporation process for operation | <ul style="list-style-type: none"><li>1.1. Materials are confirmed and available to meet operating requirements</li><li>1.2. Cleaning and maintenance requirements and status are identified and confirmed</li><li>1.3. Processing/operating parameters are entered as required to meet safety and production requirements</li><li>1.4. Equipment performance is checked and adjusted as required</li><li>1.5. Pre-start checks are carried out as required by workplace requirements</li></ul>                                                                                                                                                                                                                                                                                                                                                        |
| 2. Operate and monitor the evaporation process   | <ul style="list-style-type: none"><li>2.1. The process is started and operated according to workplace procedures</li><li>2.2. Equipment is monitored to identify variation in operating conditions</li><li>2.3. Variation in equipment operation is identified and maintenance requirements are reported according to workplace reporting requirements</li><li>2.4. The process is monitored to confirm that specifications are met</li><li>2.5. Out-of-specification product/process outcomes are identified, rectified and/or reported to maintain the process within specification</li><li>2.6. The work area is maintained according to housekeeping standards</li><li>2.7. Work is conducted according to workplace environmental standards</li><li>2.8. Workplace records are maintained according to workplace recording requirements</li></ul> |
| 3. Shut down the evaporation process             | <ul style="list-style-type: none"><li>3.1. The appropriate shutdown procedure is identified</li><li>3.2. The process is shut down according to workplace procedures</li><li>3.3. Maintenance requirements are identified and reported according to workplace reporting requirements</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

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

#### Required skills

##### **Ability to:**

- access workplace information to identify processing requirements
- select, fit and use personal protective clothing and/or equipment
- confirm supply of necessary materials and services
- prepare materials as required
- conduct pre-start checks, such as inspecting equipment condition to identify any signs of wear, selecting appropriate settings and/or related parameters, cancelling isolation or lockouts as required, confirming that equipment is clean and correctly configured for processing requirements, positioning sensors and controls correctly, ensuring any scheduled maintenance has been carried out, and confirming that all safety guards are in place and operational
- start, operate, monitor and adjust evaporation equipment to achieve required outcomes, including monitoring control points and conducting inspections as required to confirm process remains within specification, such as:
  - temperatures
  - vacuum
  - motor amperage
  - condensate flow
  - steam flow and pressure
  - throughput
  - time/speed
  - evaporated product characteristics
- monitor supply and flow of materials to and from the evaporation process
- take corrective action in response to out-of-specification results
- conduct product/batch changeovers
- report and/or record corrective action as required
- locate emergency stop functions on equipment
- follow isolation and lock out/tag out procedures as required to take process and related equipment off-line in preparation for cleaning and/or maintenance within level of responsibility
- prepare equipment for cleaning
- respond to and/or report equipment failure within level of responsibility
- complete workplace records as required
- maintain work area to meet housekeeping standards
- use process control systems according to enterprise procedures
- collect samples and conduct tests according to enterprise procedures

## REQUIRED SKILLS AND KNOWLEDGE

- conduct routine maintenance according to enterprise procedures
- clean and sanitise equipment according to enterprise procedures
- use oral communication skills/language competence to fulfil the job role as specified by the organisation, including questioning, active listening, asking for clarification and seeking advice from supervisor
- work cooperatively within a culturally diverse workforce

### Required knowledge

#### *Knowledge of:*

- purpose and basic principles of evaporation, including an understanding of the principles of steam, the relationship between boiling point and pressure as applied to evaporation, and the changes that occur to product as it moves through the evaporation process
- basic operating principles of equipment, such as main equipment components, status and purpose of guards, equipment operating capacities and applications, and the purpose and location of sensors and related feedback instrumentation
- quality characteristics to be achieved by the evaporation process
- the flow of the evaporation process and the effect of product output on downstream processes
- quality requirements of materials and effect of variation on process performance
- operating requirements and parameters and corrective action required where operation is outside specified operating parameters
- typical equipment faults and related causes, including signs and symptoms of faulty equipment and early warning signs of potential problems
- techniques used to monitor the evaporation process, such as inspecting, measuring and testing as required by the process
- inspection or test points (control points) in the process and the related procedures and recording requirements
- contamination/food safety risks associated with the process and related control measures
- common causes of variation and corrective action required
- occupation health and safety (OHS) hazards and controls
- requirements of different shutdowns as appropriate to the process and workplace production requirements, including emergency and routine shutdowns and procedures to follow in the event of a power outage
- product/process changeover procedures and responsibilities
- isolation, lock out and tag out procedures and responsibilities
- procedures and responsibility for reporting production and performance information
- environmental issues and controls relevant to the evaporation process, including waste/rework collection and handling procedures related to the process
- basic operating principles of process control where relevant, including the

**REQUIRED SKILLS AND KNOWLEDGE**

- relationship between control panels and systems and the physical equipment
- sampling and testing associated with process monitoring and control where relevant
- routine maintenance procedures where relevant
- cleaning and sanitation procedures where relevant

## 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

Assessment must be carried out in a manner that recognises the cultural and literacy requirements of the assessee and is appropriate to the work performed. Competence in this unit must be achieved in accordance with food safety standards and regulations.

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

Evidence of ability to:

- conduct pre-start checks on machinery used for evaporation
- start, operate, monitor and adjust process equipment to achieve required quality outcomes
- take corrective action in response to typical faults and inconsistencies
- complete workplace records as required
- apply safe work practices and identify OHS hazards and controls
- safely shut down equipment
- apply food safety procedures.

#### Context of and specific resources for assessment

Assessment must occur in a real or simulated workplace where the assessee has access to:

- personal protective clothing and equipment
- work procedures including advice on safe work practices, food safety, quality and environmental requirements
- information on equipment capacity and operating parameters
- production schedule, batch/recipe instructions
- evaporation process and related equipment and services
- materials to be evaporated
- sampling schedules and test procedures and equipment as required
- documentation and recording requirements and procedures
- cleaning procedures, materials and equipment as required.

| <b>EVIDENCE GUIDE</b>                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Method of assessment</b>                | <p>This unit should be assessed together with core units and other units of competency relevant to the function or work role. Examples could be:</p> <ul style="list-style-type: none"><li>• FDFOP2003A Clean equipment in place</li><li>• FDFOP2004A Clean and sanitise equipment</li><li>• FDFOP2011A Conduct routine maintenance</li><li>• FDFOP2013A Apply sampling procedures</li><li>• FDFOP2030A Operate a process control interface</li><li>• MSL973001A Perform basic tests</li></ul> |
| <b>Guidance information for assessment</b> | <p>To ensure consistency in one's performance, competency should be demonstrated on more than one occasion over a period of time in order to cover a variety of circumstances, cases and responsibilities, and where possible, over a number of assessment activities.</p>                                                                                                                                                                                                                     |

## 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>Policies and procedures</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <p>Work is carried out according to company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements</p>                                                                                                                                                                                                                |
| <b>Legislative requirements</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <p>Legislative requirements are typically reflected in procedures and specifications. Legislation relevant to this industry includes:</p> <ul style="list-style-type: none"> <li>the Food Standards Code including labelling, weights and measures legislation</li> <li>legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity</li> </ul> |
| <b>Workplace information</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>Workplace information may include:</p> <ul style="list-style-type: none"> <li>standard operating procedures (SOPs)</li> <li>specifications</li> <li>production schedules and instructions</li> <li>manufacturers' advice</li> <li>standard forms and reports</li> </ul>                                                                                                                    |
| <b>Evaporation equipment</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>Evaporation equipment may include:</p> <ul style="list-style-type: none"> <li>heat exchangers</li> <li>vapour separators</li> <li>vapour condensers and vacuum units</li> </ul> <p>Evaporators may have:</p> <ul style="list-style-type: none"> <li>single or multiple stages and effects</li> </ul>                                                                                       |
| <b>Operation of equipment and processes</b>                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>Operation of equipment and processes may require:</p> <ul style="list-style-type: none"> <li>the use of process control panels and systems</li> </ul>                                                                                                                                                                                                                                      |
| <b>Shutdown procedures</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>Shutdown procedures may include:</p> <ul style="list-style-type: none"> <li>cleaning (in some cases cleaning may be carried out by a dedicated cleaning crew)</li> </ul>                                                                                                                                                                                                                   |

**RANGE STATEMENT****Services**

Services may need to be confirmed. These depend on the nature of the process. Typical examples include:

- power
- steam
- water
- vacuum
- compressed and instrumentation air

**Unit Sector(s)****Unit sector**

Operational

**Competency field****Competency field****Co-requisite units****Co-requisite units**

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