



**Australian Government**

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

# **FDFSUG212A Chemically clean equipment**

**Release: 1**

## **FDFSUG212A Chemically clean equipment**

### **Modification History**

New Unit based on *SUGPCCE2A Chemically clean equipment*.

### **Unit Descriptor**

This unit describes the outcomes required to use chemical agents to clean in-line plant and equipment such as evaporators, pans, heaters and filters.

### **Application of the Unit**

This unit has application in the sugar milling industry.

### **Licensing/Regulatory Information**

Not applicable.

### **Pre-Requisites**

There are no pre-requisite units for this competency standard.

### **Employability Skills Information**

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

| <b>ELEMENT</b>                                             | <b>PERFORMANCE CRITERIA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 Prepare for cleaning                                     | <ul style="list-style-type: none"><li>1.1 Chemical stocks are available to meet cleaning and sanitation requirements</li><li>1.2 Services are confirmed as available and ready for operation</li><li>1.3 Equipment is checked to confirm readiness for use</li><li>1.4 Equipment shutdown is planned and equipment is taken off line for cleaning</li><li>1.5 The plant is set for the cleaning cycle</li></ul>                                              |
| 2 Operate and monitor the cleaning process                 | <ul style="list-style-type: none"><li>2.1 The cleaning cycle is undertaken according to company procedures</li><li>2.2 The cleaning process is monitored to confirm cleaning meets company requirements</li><li>2.3 Cleaning data is recorded according to workplace recording requirements</li><li>2.4 Out-of-specification process and equipment performance is identified, rectified and/or reported according to workplace reporting procedure</li></ul> |
| 3 Dispose of waste and return plant to operating condition | <ul style="list-style-type: none"><li>3.1 Cleaning chemicals are flushed from plant and disposed of according to company procedures</li><li>3.2 Plant is set up to meet operational requirements</li></ul>                                                                                                                                                                                                                                                   |

## Required Skills and Knowledge

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

### Required skills include:

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#### Ability to:

- access workplace information such as the cleaning schedule to identify cleaning requirements
- select, fit and use personal protective clothing and/or equipment
- confirm supply of necessary materials and services
- handle cleaning and sanitation agents safely including following correct handling and preparation procedures and use of appropriate protective clothing and equipment
- prepare cleaners and sanitisers as required
- pace production and/or liaise with related work areas to take equipment off-line with minimal disruption to production
- prepare equipment for cleaning including rendering equipment safe to clean, correctly positioning equipment such as valves, pipes, vents and taps, selecting appropriate cleaning cycle (CIP), removing waste and or dismantling equipment
- clean equipment according to cleaning process cycle and procedures including starting up and operating the CIP process in both automatic and manual modes
- monitor the process and equipment operation to maintain the cleaning process within the required parameters
- return plant to operating order
- take corrective action in response to out-of-specification results
- advise affected work areas of cleaning schedule and progress
- maintain and store chemicals and related equipment as required
- carry out relevant checks and inspections to confirm effectiveness of cleaning
- sort, collect, treat, recycle or dispose of waste
- record cleaning information
- maintain work area to meet housekeeping standards

### Required knowledge includes

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#### Knowledge of:

- purpose and basic principles of cleaning in place (in-line) including the use and functions of caustic and acid solutions and cleaning sequence and stages as required in the workplace
- terminology relating to the chemicals solutions used
- safe work procedures including appropriate signage of cleaning activities and safe handling and storage of cleaners and sanitisers used
- purpose and limitations of protective clothing and equipment
- cleaning and sanitation requirements for work area including different levels of cleaning requirements depending on the reason for cleaning
- methods used to render equipment safe to clean including lock-out, tag-out and isolation procedures

- equipment settings required for cleaning and for operating respectively
- basic operating principles of process control where relevant including the relationship between control panels and systems and the physical equipment
- inspection points for cleaning and sanitation
- consequences of contamination of process flows by cleaning solutions
- types of waste generated by both the production and the cleaning process and related collection, treatment and disposal requirements
- environmental consequences of incorrect waste disposal procedures
- requirements to liaise/advise related work areas
- reporting and recording systems

## Evidence Guide

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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> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p>Overview of assessment</p>                                                                                                                                                                                                 | <p>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.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</p>                                                                                                                           | <p>Evidence of ability to:</p> <ul style="list-style-type: none"> <li>• handle cleaning and sanitation agents safely</li> <li>• clean equipment according to cleaning process cycle and procedures</li> <li>• return plant to operating order</li> <li>• carry out relevant checks and inspections to confirm effectiveness of cleaning.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <p>Context of and specific resources for assessment</p>                                                                                                                                                                       | <p>Assessment must occur in a real or simulated workplace where the assessee has access to:</p> <ul style="list-style-type: none"> <li>• Cleaning procedures and related advice on equipment operation including advice on safe work practices and environmental requirements</li> <li>• Personal protective clothing and equipment</li> <li>• Equipment to be cleaned and related cleaning system</li> <li>• Cleaning schedule or advice and related Standard Operating Procedures</li> <li>• Chemicals and/or automated chemical addition system</li> <li>• Services as required</li> <li>• Material Safety Data Sheets where appropriate</li> <li>• Housekeeping standards and procedures</li> <li>• Advice on environmental management issues relevant to work responsibilities</li> <li>• Workplace information recording systems, requirements and procedures.</li> </ul> <p>They may also require access to:</p> <ul style="list-style-type: none"> <li>• Sampling and testing schedules and procedures.</li> </ul> |
| <p>Method of assessment</p>                                                                                                                                                                                                   | <p>Other units of competency relevant to the work role should be assessed in conjunction with this unit. This may include:</p> <ul style="list-style-type: none"> <li>• FDFOP2030A Operate a process control interface.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <p>Guidance information for assessment</p>                                                                                                                                                                                    | <p>To ensure consistency in one's performance, competency should be demonstrated on more than one occasion over</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

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|  | a period of time in order to cover a variety of circumstances, cases and responsibilities, and where possible, over a number of assessment activities. |
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## Range Statement

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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>                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Work is carried out in accordance with company policies and procedures, licensing requirements, legislative requirements, codes of practice and industrial awards and agreements.                                                                                                                                                                                  |
| <b>Codes of Practice</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Codes of practice include the Sugar Milling Operations Industry Code of Practice.                                                                                                                                                                                                                                                                                  |
| <b>Workplace information</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Workplace information can include: <ul style="list-style-type: none"> <li>• Standard Operating Procedures (SOPs)</li> <li>• manufacturer's specifications.</li> </ul>                                                                                                                                                                                              |
| <b>Equipment</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Equipment cleaned may include <ul style="list-style-type: none"> <li>• evaporators</li> <li>• pans</li> <li>• heaters</li> <li>• filters</li> <li>• chemical mixing and storage equipment</li> <li>• pumps and pipes.</li> </ul>                                                                                                                                   |
| <b>Services</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Services may include: <ul style="list-style-type: none"> <li>• power</li> <li>• water</li> <li>• steam</li> <li>• compressed and instrumentation air.</li> </ul>                                                                                                                                                                                                   |
| <b>Tests</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Where tests are conducted as part of operation a typical requirement is measurement of pH and condensate quality                                                                                                                                                                                                                                                   |
| <b>Process monitoring</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Monitoring the process depends on the cleaning requirements. It may include monitoring: <ul style="list-style-type: none"> <li>• condensate quality (evaporators, heaters and pans)</li> <li>• vacuum and brix (evaporators)</li> <li>• time</li> <li>• storage tank levels</li> <li>• chemical strength</li> <li>• cycle time</li> <li>• temperatures.</li> </ul> |



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|-----------------------------------|---------------------------------------------------------------------------------------------------------------|
| <b>Control panels and systems</b> | Operation and monitoring of equipment and processes typically requires the use of control panels and systems. |
| <b>Control points</b>             | Control points refer to those key points in a work process which must be monitored and controlled.            |
| <b>Teamwork</b>                   | Work may require the ability to work within a team environment.                                               |
| <b>Information systems</b>        | Information systems may be print or screen based.                                                             |

## **Unit Sector(s)**

Sugar Milling.