



Australian Government

MSFGG4021 Operate complex glass processing plant control systems

Release: 1

MSFGG4021 Operate complex glass processing plant control systems

Modification History

Release 1. Supersedes and is equivalent to MSFGG4014 Operate complex glass processing plant control systems. Changes to application, elements, performance criteria and assessment requirements.

Application

This unit describes the skills and knowledge required to operate a complex glass processing plant control panel using control loops and a broad range of control algorithms to control plant areas and multiple products and process streams.

This unit applies to experienced workers who interpret and use advanced technical information to develop solutions to potentially complex glass and glazing requirements. They commonly work independently and typically solve complex problems that require theoretical knowledge and experience about the specification, manufacture and installation of a wide range of glass and glazing products. Job roles commonly involve leadership and supervisory responsibilities.

Technicians and central control room operators with this competency manage multiple complex tasks and take overall responsibility for the operation of equipment and processes within the plant area, including optimisation of these using the control system.

At the time of this unit's release, the work described in this unit does not require licensing or certification, but state or territory authorities should be consulted to determine the current status. Workers on construction sites are required by law to complete induction training. They must also comply with relevant legislation, Australian Standards, codes and manufacturers' installation instructions.

Competency Field

Glass and glazing

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Identify application and data requirements	1.1 Use system equipment and features to access the control system 1.2 Monitor glass processing tasks using the operator interface, selecting appropriate controller modes 1.3 Access required historical data and information from the system

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	1.4 Monitor and acknowledge messages and alarms and take appropriate action according to workplace procedures 1.5 Access and manage advanced control features to meet work requirements
2. Access control information	2.1 Access relevant data and information from the control system and drawings by applying systems knowledge 2.2 Determine status of individual pieces of equipment from control panel readings, and use the information to identify potential faults 2.3 Minimise fluctuations and variations in the process by interpreting existing trends and control schematics 2.4 Determine and relate the overall operating effectiveness of the plant area to the required targets for the area
3. Control process variations and monitor operations	3.1 Use historical data about plant operations to help identify problems, and process available information to identify potential faults 3.2 Make required set-point or output changes to meet plant area and process requirements 3.3 Adjust production in response to test results and control panel information 3.4 Monitor key process and environmental variables and take appropriate action according to workplace procedures 3.5 Adjust controller settings according to workplace procedures 3.6 Optimise plant area according to workplace procedures 3.7 Undertake coordination with stakeholders external to the plant area according to work requirements 3.8 Record adjustments and variations to specifications and schedules and communicate to appropriate personnel within required time frames
4. Facilitate planned and unplanned process start-ups and shutdowns	4.1 Select and apply procedures for planned start-up and shutdown processes 4.2 Select and apply procedures for unplanned shutdown processes 4.3 Implement emergency responses according to workplace procedures 4.4 Identify and communicate necessary information to all personnel affected by events 4.5 Log required information according to workplace procedures

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
5. Respond to alarms or out-of-specification conditions and control hazards	5.1 Identify and prioritise system(s) affected by the alarm or condition and take appropriate action according to workplace procedures 5.2 Respond promptly to alarm or incidents according to workplace procedures 5.3 Deal with any out-of-specification material according to workplace procedures and communicate problems and solutions to appropriate personnel 5.4 Record incident information according to workplace procedures and communicate details of the alarm and action taken to the next shift at the changeover 5.5 Follow up incidents to confirm appropriate action has been taken 5.6 Identify hazards in the production and processing work area and assess the risks arising from those hazards 5.7 Implement measures to control risks according to workplace procedures and duty of care requirements
6. Resolve other problems within scope of responsibility	6.1 Identify possible problems with equipment, control systems or process to determine if action is needed 6.2 Establish the possible causes of faults and rectify them using appropriate solutions within one's area of responsibility 6.3 Follow initiated control actions until resolution, and report problems outside one's area of responsibility according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Supersedes and is equivalent to MSFGG4014 Operate complex glass processing plant control systems.

Links

Companion Volume Implementation Guides are found in VETNet – -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=0601ab95-583a-4e93-b2d4-cfb27b03ed73>

Assessment Requirements for MSFGG4021 Operate complex glass processing plant control systems

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Performance Evidence

There must be evidence the candidate has completed the tasks in the elements and performance criteria of this unit of competency and has demonstrated the ability to:

- identify, analyse and respond to each of the following at least once:
 - instrument failure or malfunction
 - electrical failure or malfunction
 - mechanical failure or malfunction
 - equipment design deficiencies
 - product parameters (temperature, flows, pressure or levels) outside optimal range
 - process control system malfunction
 - power or utility failures
 - application problems.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- basic science of upstream and downstream glass processes
- glass product specifications and tolerances
- general operating principles and features of glass processing plants, including:
 - process control philosophies, strategies and systems, including multiple control systems
 - systems operating parameters and integrity limits
 - architecture and location of the glass process and/or production equipment
 - interactions between glass plant items and/or processes and between plant units within entire plant
 - communication systems and techniques for effective communication
 - fire and gas detection and protection systems
 - emergency shutdown procedures
- organisational procedures for the operation of a specific plant control system
- features and functions of control loops, including:
 - interactions between multiple control loops

- cascade control
- piping and instrumentation diagram (P&ID) control
- set points
- controlled variable and indicated variable
- features and functions of instrumentation and control systems and components, including:
 - feed forward, feedback and open control
 - sensing devices
 - final control elements
 - transducers and/or transmitters
- impacts of changing controller settings and the limits within which changes can be made
- features of typical problems encountered in a glass processing plant, and the process of how to respond, including for:
 - operating without advanced control features
 - loss of power or utilities
 - analysing failure modes
 - variation and/or loss of feed
 - unstable control of pressure, temperature level and flows
 - control equipment failure
 - process plant trips
 - change in atmospheric conditions (rain, temperature, wind and lightning)
 - emergency situations
 - how to interpret complex process drawings, including P&IDs, probability of failure on demand (PFD) and cause and effect.

Assessment Conditions

Skills must have been demonstrated in a glass processing workplace or in a simulated environment that reflects workplace conditions and contingencies.

- use of suitable facilities, equipment and resources, including:
 - a complex glass processing plant control panel using control loops and a broad range of control algorithms to control plant areas and multiple products and process streams
 - workplace procedures.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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