



Australian Government

PMC553041 Set up and optimise glass furnace process

Release: 1

PMC553041 Set up and optimise glass furnace process

Modification History

Release 1. Supersedes and is equivalent to PMC553041C Set up and optimise glass furnace process

Application

This unit of competency covers the skills and knowledge required to implement furnace changeover and set up and optimise glass furnace processes.

This unit of competency applies to experienced operators, leading hands, supervisors or those in similar roles who are required to perform shutdown and isolation procedures, prepare and set up equipment, perform changeovers, make adjustments to optimise process, remedy faults/non-conformity and solve problems within area of responsibility.

This unit of competency applies to an experienced operator demonstrating theoretical and technical knowledge and well developed skills in situations that require some discretion and judgement. The experienced operator may work alone or as a member of a team or group and will work in liaison with other shift team members, team leader and supervisor, as appropriate.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Operations

Unit Sector

Not applicable

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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|---|--|---|
| 1 | Remove current equipment and/or tooling | 1.1 Identify all safety and emergency procedures
1.2 Shut down furnace and ancillary equipment in accordance with work instructions and manufacturer specifications
1.3 Conduct tests and checks on equipment/tooling prior to removal in accordance with work instructions
1.4 Remove current equipment/tooling in accordance with work instructions and manufacturer specifications
1.5 Complete records and logs for removal |
| 2 | Install and set up new equipment and/or tooling | 2.1 Perform checks and tests prior to installation
2.2 Identify any faults in equipment/tooling and take appropriate action
2.3 Install and set up appropriate equipment/tooling for new production process in accordance with work instructions
2.4 Ensure alignment of all equipment and perform checks according to product specifications and work instructions
2.5 Ensure set-up and configuration of equipment for start-up complies with work instructions
2.6 Perform checks and tests to product and equipment in accordance with work instructions |
| 3 | Monitor, interpret data and adjust operation | 3.1 Ensure forming equipment start-up function complies with work instructions
3.2 Ensure glass forming equipment is operated in accordance with work instructions
3.3 Monitor instruments and control panels, and interpret test results for fluctuations, variations and trends |

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| | | 3.4 | Monitor plant and process and deduce conditions of materials in process and products being made |
| | | 3.5 | Determine appropriate action to improve process operation |
| | | 3.6 | Adjust furnace controls to ensure glass parameters are maintained to job specifications |
| | | 3.7 | Check that process operation has improved |
| | | 3.8 | Continue analysing data and making adjustments until desired level of process operation is achieved and product is within specifications in accordance with work instructions |
| 4 | Sample, test and record product data | 4.1 | Carry out sampling procedures appropriate to the product and the test in line with enterprise requirements |
| | | 4.2 | Complete appropriate test to enterprise and client requirements |
| | | 4.3 | Identify variations from process parameters and take appropriate action |
| | | 4.4 | Measure/graph and record operating parameters according to enterprise requirements |
| | | 4.5 | Record test results in hard or electronic form as required by standard procedures and work instructions |
| 5 | Rectify equipment and quality problems | 5.1 | Identify the range of equipment and quality faults that can occur during the operation |
| | | 5.2 | Diagnose possible causes of equipment and quality faults |
| | | 5.3 | Rectify cause of equipment failure and quality faults by established enterprise procedures |
| | | 5.4 | Identify and rectify equipment failure causes in accordance with established enterprise procedures |
| | | 5.5 | Ensure appropriate records and log books of equipment operations are maintained to meet enterprise |

		requirements
		5.6 Identify non-routine problems and report to designated person
6	Shut down equipment	6.1 Shut down equipment in accordance with work instructions
		6.2 Complete appropriate records and logs
		6.3 Shut down equipment in an emergency situation
7	Prepare equipment for maintenance	7.1 Isolate equipment in accordance with work instructions
		7.2 Ensure area is clear and safe for maintenance
		7.3 Complete all records and logs
8	Control hazards	8.1 Identify hazards from the job to be done
		8.2 Identify other hazards in the work area
		8.3 Assess the risks arising from those hazards
		8.4 Implement measures to control those risks in line with procedures

Foundation Skills

This section describes those required skills (language, literacy and numeracy) that are essential to performance.

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

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Regulatory framework The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used.

Applicable legislation, regulations, standards and codes of practice include:

- health, safety and environmental (HSE) legislation, regulations and codes of practice relevant to the workplace, equipment and production processes and hazardous materials
- Australian/international standards relevant to the materials being used and products being made
- any relevant licence and certification requirements.

All operations to which this unit applies are subject to stringent HSE requirements, which may be imposed through state/territory or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and such requirements the legislative requirements take precedence.

Procedures All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, and include one or any combination of:

- manufacturer's technical information
- job cards
- drawings
- emergency procedures
- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant.

Hazards Hazards must be identified and controlled. Identifying hazards requires consideration of:

- heat, smoke, dust, vapours or other atmospheric hazards
- weight, shape, volume of materials to be handled
- hazardous products and materials
- sharp edges, protrusions or obstructions
- slippery surfaces, spills or leaks
- electricity
- gas
- gases and liquids under pressure
- noise
- rotational equipment or vibration
- plant services (steam, condensate, cooling water, etc)
- structural hazards
- equipment failures
- machinery, equipment and product mass
- limited head spaces or overhangs
- working at heights
- working in restricted or confined spaces
- other hazards that might arise.

Problems Routine and non-routine problems must be resolved.

Routine problems are predictable and have known solutions and include one or more of:

- temperature and pressure problems
- equipment problems
- product quality problems.

Non-routine problems are unexpected problems or variations of previous problems.

Non-routine problems must be resolved by applying operational knowledge to develop new solutions, either individually or in collaboration with relevant experts, to:

- determine problems needing action
- determine possible fault causes
- develop solutions to problems which do not have a known solution
- follow through items initiated until final resolution has occurred

- report problems outside area of responsibility to designated person.

Operational knowledge includes one or more of:

- procedures
- training
- technical information, such as journals and engineering specifications
- remembered experience
- relevant knowledge obtained from appropriate people.

Records and reports Records include one or more of:

- log books/sheets
- electronic records
- job/work sheets
- other records used for the smooth running of the plant.

Reports include one or more of:

- paper or electronic-based logs and reports
- verbal/radio reports
- reporting items found which require action.

Tools and equipment Tools and equipment include:

- glass making furnace
- ancillary equipment that is integral to the process
- programmable logic controllers (PLC), if fitted
- measuring and recording equipment.

Unit Mapping Information

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Links

MSA Training Package Implementation Guides - <http://mskills.org.au/training-packages/info/>