



Australian Government

Department of Education, Employment and Workplace Relations

PMC552041C Operate process ovens

Revision Number: 1

PMC552041C Operate process ovens

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit of competency covers the operation of furnaces used in annealing, conditioning, laminating, mirroring, toughening and glass reheating. It involves preparing equipment for production, operating and monitoring equipment operation and rectifying routine problems.
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Application of the Unit

Application of the unit	<p>This unit of competency applies to operators who are responsible for operating process ovens.</p> <p>This unit does NOT apply to the operation of furnaces used for primary glass production and forming of glass products directly from the melting furnace which is covered by <i>PMC552040C Operate glass melting process</i>.</p> <p>This competency includes the operation of all ancillary equipment.</p> <p>It does NOT include processes involved with:</p> <ul style="list-style-type: none"> • melting furnaces used in glass production • forming of glass products directly from a melting furnace. <p>This competency is typically performed by operators working either independently or as part of a work team. At all times they would be liaising with other members of the team.</p>
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	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
<p>1. Prepare the annealing/toughening/reheating/laminating equipment</p>	<p>1.1. Interpret job specifications 1.2. Isolate appropriate line/equipment 1.3. Undertake basic setup and removal of current moulds in accordance with manufacturer's and work instructions if required 1.4. Check that the quality and quantity of input glass is suitable for production run as per company requirements 1.5. Undertake equipment preparation and checks according to established procedures 1.6. Make machinery/equipment adjustments and final preparations to ensure that work instructions are met 1.7. Conduct product run/procedure to produce samples to confirm that quality meets specifications, if required</p>
<p>2. Anneal/toughen/reheat/laminate the products</p>	<p>2.1. Monitor equipment to ensure quality specifications are met 2.2. Identify routine variations to annealing/reheating process 2.3. Make routine operation adjustments according to established procedures to maintain product quality 2.4. Conduct product sampling and quality control checks according to standard procedures 2.5. Use ancillary equipment and observe safety procedures in accordance with enterprise requirements 2.6. Document and maintain records and production results according to enterprise requirements</p>
<p>3. Monitor and record reheating operation</p>	<p>3.1. Measure and record operating parameters, according to enterprise requirements 3.2. Adjust reheating equipment controls to ensure glass parameters are maintained to job specifications 3.3. Ensure appropriate records and log books of equipment operations are maintained to meet procedures</p>
<p>4. Rectify routine problems</p>	<p>4.1. Identify the range of faults that can occur during the operation 4.2. Determine and rectify fault causes in accordance</p>

ELEMENT	PERFORMANCE CRITERIA
	with procedures 4.3. Identify and rectify equipment failure causes in accordance with procedures 4.4. Identify non-routine problems and report to designated person
5. Control hazards	5.1. Identify hazards from the job to be done 5.2. Identify other hazards in the work area 5.3. Assess the risks arising from those hazards 5.4. Implement measures to control those risks in line with procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

Required skills include:

- recognising process conditions which will lead to out of specification production and taking appropriate action
- implementing the enterprise's standard procedures and work instructions and relevant regulatory requirements within appropriate time constraints and in a manner relevant to the operation of the reheating equipment
- reading and numeracy to interpret workplace documents and technical information

Required knowledge

Required knowledge includes:

- composition and nature of the glass
- startup and shutdown processes
- construction and limitations of reheating equipment and conditions
- out of specification situations
- annealing/toughening/conditioning/mirror/laminating/reheating process set up, including identification of isolation points and entering new parameters into PLC
- temperature and temporary and permanent stress
- annealing and post-annealing processes
- toughening and post-toughening processes
- quality problems such as:
 - poor optics
 - excessive breakage
 - non-uniform break pattern
 - incorrect cross bend
 - excessive bow
 - scratches
 - poor glass shape
- distinguish between causes of faults such as:
 - raw material
 - mechanical
 - electrical/instrument

Evidence Guide

EVIDENCE GUIDE	
<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>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.</p>
<p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</p>	<p>It is essential that the reheating equipment be understood and that the importance of critical material properties, settings, parameters and readings is known. Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action.</p> <p>Consistent performance should be demonstrated. In particular look to see that:</p> <ul style="list-style-type: none"> • temperatures and stress parameters are maintained within limits • equipment setup is completed in accordance with work instructions including identification of isolation points, correct isolation of equipment and correct entering of new parameters • startup and shutdown occurs first time • signals and alarms are responded to immediately • process measurements are continually made, observed and interpreted • quality is maintained to customer specifications. <p>Competence must be demonstrated in the operation of all ancillary equipment to the level required for this unit of competency.</p>
<p>Context of and specific resources for assessment</p>	<p>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.</p> <p>Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.</p> <p>Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant</p>

EVIDENCE GUIDE	
	competency components. A bank of scenarios/case studies/what ifs and questions will be required to probe the reasoning behind observable actions.
Method of assessment	<p>In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units.</p> <p>It may be appropriate to assess this unit concurrently with:</p> <ul style="list-style-type: none"> MSAPMSUP292A Sample and test materials and product. <p>Individual enterprises may choose to add prerequisites and co-requisites relevant to their processes.</p>
Guidance information for assessment	Assessment processes and techniques must be culturally appropriate and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
<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>	
Procedures	All operations are performed in accordance with standard procedures and work instructions
Line equipment	<p>Line equipment includes:</p> <ul style="list-style-type: none"> • robots • load stations • lehr furnace • unloading, station conveyors
Equipment	<p>This unit includes annealing/conditioning/reheating equipment applicable to each specific area of glass products manufacture. These may include:</p> <ul style="list-style-type: none"> • packaging, bottles and jars • automotive glass • flat glass
Tools and equipment	<p>Tools and equipment may include:</p> <ul style="list-style-type: none"> • reheating equipment and associated equipment • toughening equipment • mirror and laminating equipment • annealing and associated equipment • gas stations • computers • measuring and recording equipment • communication equipment • hand tools • safety clothing and equipment
Typical problems	<p>Typical problems may include:</p> <ul style="list-style-type: none"> • temperature and pressure problems • equipment problems • quality problems
Occupational health and safety	All operations are subject to stringent OHS requirements and these must not be compromised at

RANGE STATEMENT	
(OHS)	any time. Where there is an apparent conflict between performance criteria and OHS requirements, the OHS requirements take precedence

Unit Sector(s)

Unit sector	Operational/technical
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Competency field

Competency field	
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Co-requisite units

Co-requisite units		