



Australian Government

Department of Education, Employment and Workplace Relations

PMC552031C Operate extrusion equipment

Revision Number: 1

PMC552031C Operate extrusion equipment

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit of competency covers the operation of extrusion equipment including identifying and isolating equipment malfunctions. It involves operating equipment correctly and safely, monitoring equipment and facilitating output changes.
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Application of the Unit

Application of the unit	This unit of competency applies to operators in a large plant who are responsible for looking after the operation of mechanical forming equipment, including extruders and ancillaries, for clay, ceramic and concrete products. This unit does NOT apply to presses or back stamping, slip forming or manual forming. This unit does NOT require the operation of a central control panel. This competency is typically performed by operators working either independently or as part of a team. At all times they would be liaising and cooperating with other members of the team.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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
1. Prepare the extrusion equipment	1.1. Determine the product formation requirements from the production program 1.2. Ensure the required change parts are in place 1.3. Ensure the required raw materials are selected and loaded or connected to the equipment 1.4. Ensure the equipment is safe to use
2. Operate forming equipment	2.1. Ensure correct vacuum is applied to raw material 2.2. Operate equipment to produce product of the required shape, dimensions and consistency 2.3. Monitor equipment conditions and adjust as required 2.4. Monitor and adjust product properties as required 2.5. Record production data as required
3. Operate surface finishing equipment	3.1. Operate surface patterning equipment as required 3.2. Operate frit application and similar equipment as required 3.3. Monitor operations and adjust/refill as required 3.4. Apply glazing material as required
4. Unload and shut down extrusion equipment	4.1. Unload and shut down extrusion equipment at conclusion of the production run to requirements 4.2. Clean up work area and perform housekeeping duties 4.3. Store materials appropriately
5. Rectify routine problems	5.1. Identify the range of faults that can occur during the operation 5.2. Determine and rectify fault causes in accordance with procedures/work instructions 5.3. Identify and rectify equipment failure causes in accordance with procedures/work instructions 5.4. Ensure appropriate records and log books of equipment operations are maintained to meet procedures/work instructions 5.5. Identify non-routine problems and report to designated person
6. Control hazards	6.1. Identify hazards in extruder work area 6.2. Assess the risks arising from those hazards 6.3. Implement measures to control those risks in line with procedures and duty of care

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 conditions which will lead to out of specification product
- implementing the enterprise's procedures and relevant regulatory requirements within time constraints and in a manner relevant to the operation of the equipment
- conveying information relevant to the operation clearly and effectively
- reading and numeracy to interpret workplace documents and technical information

Required knowledge

Required knowledge includes:

- composition and nature of the products being manufactured
- construction and limitations of the equipment
- startup and shutdown processes
- adjustments required
- ability to distinguish between causes of faults such as:
 - material/moisture
 - equipment adjustment/set up
 - maintenance

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	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.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that the extrusion equipment be understood and that the importance of critical material properties, settings 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. Consistent performance should be demonstrated. In particular look to see that: • extruder is working within limits • product meets size and consistency parameters • waste is properly handled • product is formed without surface blemishes or damage • surface treatments are applied to requirements. Competence must be demonstrated in the operation of all ancillary equipment to the level required for this unit of competency.
Context of and specific resources for assessment	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. Assessment will occur over a range of situations which will include disruptions to normal, smooth operation. 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 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	In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication

EVIDENCE GUIDE	
	units. Individual enterprises may choose to add prerequisites and co-requisites relevant to their processes.
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	
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.	
Procedures	All operations are performed in accordance with standard procedures and work instructions
Equipment and unit operations	This unit includes all such items of equipment and unit operations which form part of the extrusion system. These may include: • pug mill • extruder including dies, wire trims or blades • surface treatment applications, including frit or glaze • impression rollers or moulds • wire cutting machines • transfer machines
Typical problems	Typical problems may include: • moisture content not within specifications • maladjustment of the cutting wires • damage to the product
Occupational health and safety (OHS)	The identification and control of hazards and the application of OHS is to be in accordance with current, applicable legislation and regulations, and company procedures. All work is carried out at all times in accordance with these requirements

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		