

Title	Optimise the extrusion process and operate an extrusion process for complex products		
Level	4	Credits	8

Purpose	People credited with this unit standard are able to: optimise the extrusion process for a repeat production run, and operate an extrusion process for complex products.
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Classification	Plastics Processing Technology > Extrusion
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Available grade	Achieved
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Entry information

Recommended skills and knowledge	Unit 29520, <i>Demonstrate knowledge of, and operate and control the plastics extrusion process</i> and Unit 23131, <i>Compare melt flow and dimensional stability of plastics materials</i> .
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Explanatory notes

- 1 Legislation relevant to this unit standard includes but is not limited to the Health and Safety at Work Act 2015.
- 2 Definitions
Optimise – the maximum output a line can maintain while remaining stable and producing product to a consistent quality specification.
Workplace procedures – procedures used by the organisation carrying out the work and applicable to the tasks being carried out. Examples are – standard operating procedures, site safety procedures, equipment operating procedures, codes of practice, quality management practices and standards, procedures to comply with legislative and local body requirements.
- 3 For assessment of Outcome 2, the two examples of a complex product may be two variants of the same product but using different materials on different extrusion lines with different set-up requirements.
- 4 All evidence requirements must be performed in accordance with workplace procedures.

Outcomes and evidence requirements

Outcome 1

Optimise the extrusion process for a repeat production run.

Evidence requirements

1.1 Extruder and line controls are monitored and adjusted to optimise production output and quality, and limitations are reported.

Range monitoring includes – line speed, heat profile, dimensions, product weight.

1.2 Common equipment malfunctions are identified, and their correction is described.

Range examples of common equipment malfunctions are – feed throat bridging, excessive head pressure, extruder surging, drive belt slippage, leaking head clamp, faulty temperature controllers, overriding barrel temperatures, haul off speed variation, cutter faults; evidence is required for at least three different common equipment malfunctions.

Outcome 2

Operate an extrusion process for complex products.

Range examples of complex products are – finished profiles, decorative shrink wrapped product, foam product, co-extruded product, rigid PVC or PE pipe with dimensions equal or greater than 315mm diameter; evidence is required for at least two different complex products which may be two variants of the same product but using different materials on different extrusion lines with different set-up requirements.

Evidence requirements

2.1 Extrusion operations are performed and quality inspection procedures are consistently applied in accordance with workplace procedures.

Range examples of extrusion operations are – product removal, product finishing, product handling, product packaging.

2.2 Extrusion equipment is monitored and adjusted to ensure productivity and product quality meets job specification.

Range examples of equipment functions are – pay off, cooling and sizing, curing, haul off, printing, marking, measuring, testing, cutting, coiling, belling, packaging; evidence is required for at least six items of equipment.

Replacement information	This unit standard and unit standard 27571 replaced unit standard 284.
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Planned review date	31 December 2021
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	15 September 2011	31 December 2019
Review	2	15 September 2016	N/A

Consent and Moderation Requirements (CMR) reference	0013
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Please note

Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMR). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

Comments on this unit standard

Please contact Competenz qualifications@competenz.org.nz if you wish to suggest changes to the content of this unit standard.