Title	**Prepare extrusion dies and calibrators for production and demonstrate knowledge of their design principles**		
Level	**4**	**Credits**	**7**

Purpose	People credited with this unit standard are able to: prepare a die and a calibrator; and demonstrate knowledge of extrusion tooling design principles.

Classification	Plastics Processing Technology > Extrusion

Available grade	Achieved

Entry information	
Recommended skills and knowledge	Unit 29520, *Demonstrate knowledge of, and operate and control the plastics extrusion process*.

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
Critical surfaces on dies and calibrators are polymer contact surfaces and component mating surfaces.
Tooling has two parts:
- a a die for a single plastics material which comprises a minimum of four components including the die head components;
- b a calibrator, or a pipe sizing sleeve which can be either a pressure or vacuum system with an integral cooling system. The cooling system may be external.

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 All evidence requirements must be performed in accordance with workplace procedures.

Outcomes and evidence requirements

Outcome 1

Prepare a die for production or storage.

Evidence requirements

1.1 Die is disassembled and cleaned.

1.2 Die critical surfaces are inspected and/or measured and reported for damage and wear.

1.3 Die is assembled.

1.4 Die heating systems are fitted and checked.

1.5 Die is prepared for production or storage.

Outcome 2

Prepare a calibrator for production or storage.

Evidence requirements

2.1 Calibrator is disassembled and cleaned.

2.2 Calibrator critical surfaces are inspected and/or measured and reported for damage and wear.

2.3 Calibrator vacuum, air and water circuits are checked.

2.4 Calibrator is assembled.

2.5 Calibrator is prepared for production or storage.

Outcome 3

Demonstrate knowledge of extrusion tooling design principles.

Evidence requirements

3.1 Die sizing is described in terms of the characteristics which affect it.

Range examples of characteristics are – polymer shrinkage, die (polymer) swell, draw down.

3.2 Die performance and product are described in terms of the effects of key die design characteristics.

Range examples of key die design characteristics are – land length, surface finish, material flow path, streamlining.

3.3 Calibrator performance and product are described in terms of the effects of key calibrator design characteristics.

Range examples of key calibrator design characteristics are – surface finish, vacuum vent dimensions, cooling system, common construction materials.

Planned review date	31 December 2021

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	28 April 1997	31 December 2014
Revision	2	15 November 2002	31 December 2014
Review	3	27 October 2005	31 December 2014
Review	4	15 September 2011	31 December 2019
Review	5	15 September 2016	N/A

Consent and Moderation Requirements (CMR) reference	0013

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.