

Title	Demonstrate textile dye selection and use		
Level	5	Credits	20

Purpose	<p>This unit standard is for people working in the dyeing and finishing industry.</p> <p>People credited with this unit standard are able to: demonstrate knowledge of and apply selection and usage of dyestuffs and chemicals, the dyeing cycle, and dyed product performance assessment; and demonstrate knowledge of computerised colour measurement and shade prediction.</p>
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Classification	Textiles Manufacture > Textile Dyeing and Finishing
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Available grade	Achieved, Merit, and Excellence
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Guidance Information

- 1 Legislation relevant to this unit standard includes but is not limited to the Health and Safety at Work Act 2015.
- 2 **Definition**
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, and procedures to comply with legislative and local body requirements.
- 3 **Assessment guidance**
 Competence is intended to be demonstrated using chemicals, processes and machinery used in the workplace.
- 4 **Recommended skills and knowledge:**
 Unit 5375, *Demonstrate knowledge of textile dyeing and finishing*.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of and apply selection and usage of dyestuffs and chemicals.

Range dyestuffs – acid, basic, reactive, disperse, direct, sulphur, vat, optical brightening agents.

Performance criteria

- 1.1 Dyestuff characteristics are described in terms of their significance to selection and use.
- Range solubility, pH stability, high-temperature stability, combinability.
- 1.2 Synthetic dyes are classified and compared according to their generic type and properties.
- 1.3 Synthetic dyes are compared in terms of factors that justify their selection for use with fibre types.
- Range application performance, product performance, cost.
- 1.4 Dyestuffs and chemicals are selected and used according to stability, type, performance and cost requirements.

Outcome 2

Demonstrate knowledge of and apply the dyeing cycle.

Performance criteria

- 2.1 Dye profiles and dyeing conditions are described for each dyestuff used with a fibre typical of that dyestuff.
- Range dyestuffs – acid, basic, reactive, disperse, direct, sulphur, vat, optical brightening agents;
conditions – time, temperature, rate of temperature rise, auxiliary chemicals, dyestuff and chemical addition sequence.
- 2.2 Chemicals used in dyeing are described in terms of their effect on the dyeing cycle and dye application.
- Range pre-treatments – bleaching, desizing, metal sequestering, scouring, wetting;
during the cycle – anti-foam, buffer, de-aeration, dispersion, exhaustion, carriers, levelling, fibre protection;
after-treatments – fixation, dye fastness improvement, loose dye removal, siliconing and enzyme treatment.
- 2.3 The dyeing cycle is applied in accordance with workplace procedures.
- Range dye profiles and conditions, pre treatments, during cycle and after treatments.

Outcome 3

Demonstrate knowledge of and apply dyed product performance assessment.

Range international standards – American Society for Testing Materials (ASTM), ISO and standards used in the workplace.

Performance criteria

3.1 Assessment of dyed product performance is described according to internationally recognised standard methods.

Range methods – light fastness, wet and dry rub fastness, wash fastness.

3.2 Two dyed products are tested according to internationally recognised standards.

Outcome 4

Demonstrate knowledge of computerised colour measurement and shade prediction.

Performance criteria

4.1 Sections of a computerised colour measurement system are described in terms of their function.

Range computer, visual display screen, printer, spectrophotometer, keyboard and/or controls.

4.2 Computerised colour measurement system is described in terms of the operating principles and measurement technique.

4.3 Shade prediction and dye selection using a computerised colour measurement system are described in terms of the system requirements, and the prediction and dye selection mechanism.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	25 October 1995	31 December 2019
Revision	2	8 August 1997	31 December 2019
Revision	3	18 July 2000	31 December 2019
Revision	4	10 October 2001	31 December 2019
Revision	5	15 January 2004	31 December 2019
Review	6	26 March 2007	31 December 2019
Review	7	17 April 2009	31 December 2019
Review	8	19 May 2016	31 December 2023
Review	9	24 March 2022	31 December 2023

Consent and Moderation Requirements (CMR) reference

0030

This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.