Title	**Demonstrate knowledge of yarn specification and measurement**		
Level	**4**	**Credits**	**15**

Purpose	People credited with this unit standard are able to: describe yarn constructional properties; demonstrate knowledge of yarn count measurement and calculation; describe yarn twist measurement and calculation; describe yarn moisture content measurement and calculation; describe yarn strength measurement and calculation; describe yarn oil and fatty matter content measurement and calculation; demonstrate knowledge of yarn shade specification, assessment, and measurement; and describe yarn evenness specification and testing.

Classification	Textiles Manufacture > Core Yarn Processing

Available grade	Achieved

Guidance Information

1 Definition
Workplace procedures refer to the procedures used by the organisation carrying out the work and applicable to the tasks being carried out. Examples are – standard operating procedures, safety procedures, equipment operating procedures, codes of practice, quality management practices and standards, procedures to comply with legislative and local body requirements.

2 Assessment information
All activities and evidence must be in accordance with workplace procedures.

Outcomes and performance criteria

Outcome 1

Describe yarn constructional properties.

Performance criteria

1.1 Yarn properties that are commonly used to specify yarn construction are described in terms of their nature, method of specification and their effect on yarn processing and product performance.

Range yarn count, yarn twist, yarn strength and elongation, moisture content, extractable matter content, shade, evenness, bulk, friction.

Outcome 2

Demonstrate knowledge of yarn count measurement and calculation.

Performance criteria

2.1 Yarn count system is explained.

Range may include but is not limited to – tex, denier, metric, Yorkshire skeins, Worsted, Galashiels, Dewsbury, cotton;
evidence of one is required.

2.2 Count measurement is described in terms of methods used to assess absolute count and count variation.

Range includes – equipment used, sample selection, test procedure, calculation of results, calculation of variance, interpretation of results;
methods may include – laboratory test using wrap reel, doff weight and length, cross-card test.

Outcome 3

Describe yarn twist measurement and calculation.

Performance criteria

3.1 Factors used to define or calculate yarn twist are described.

Range twist level, twist direction, single twist, ply twist, twist take-up, twist on twist effect, twist against twist effect, twist factor, ply combinations.

3.2 Twist measurement is described in terms of methods used to assess twist level, direction, and variation.

Range includes – equipment used, sample selection, test procedure, calculation of results, calculation of variance, interpretation of results;
methods may include – calculation from machine settings, laboratory measurement using parallel fibre or ply, laboratory measurement using extension-contraction.

Outcome 4

Describe yarn moisture content measurement and calculation.

Performance criteria

4.1 Factors used to define or calculate yarn regain are described.

Range dry weight, conditioned weight, moisture content percentage, regain percentage.

4.2 Measurement methods used for yarn moisture content measurement are described.

Range includes – equipment used, sample selection, test procedure, calculation of results, calculation of variance, interpretation of results;
methods – dry to constant weight, electronic measurement.

Outcome 5

Describe yarn strength measurement and calculation.

Performance criteria

5.1 Factors used to define or calculate yarn strength are described.

Range strength, strength per count unit, strength variation, extension at break.

5.2 Yarn strength measurement methods are described.

Range equipment used, sample selection, test procedure, calculation of results, calculation of variance, interpretation of results.

Outcome 6

Describe yarn oil and fatty matter content measurement and calculation.

Performance criteria

6.1 Factors used to define or calculate oil and fatty matter content are described.

Range extractable matter percentage.

6.2 Measurement methods for yarn oil and fatty matter content measurement are described.

Range includes – equipment used, sample selection, test procedure, calculation of results, calculation of variance, interpretation of results;
methods may include – rapid extraction, soxhlet extraction.

Outcome 7

Demonstrate knowledge of yarn shade specification, assessment, and measurement.

Performance criteria

7.1 Factors that influence the assessment and measurement of shade are defined and described in terms of their effect on assessment and measurement.

Range light source, viewing conditions, preparation and storage of standards.

7.2 Methods used for assessment and measurement of yarn shade are described.

Range includes – equipment used, sample selection, test procedure, interpretation of results;
methods – visual assessment, colour measurement.

Outcome 8

Describe yarn evenness specification and testing.

Performance criteria

8.1 Factors used to define or calculate yarn evenness are described.

Range count variation, Uster evenness index.

8.2 Yarn evenness measurement methods are described.

Range includes – equipment used, sample selection, test procedure, calculation of results, calculation of variance, interpretation of results;
methods – wrap board, analysis of count variation, Uster evenness tester.

Planned review date	31 December 2026

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	18 June 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	12 August 2004	31 December 2019
Review	6	23 April 2008	31 December 2019
Review	7	19 May 2016	31 December 2025
Review	8	24 March 2022	N/A

Consent and Moderation Requirements (CMR) reference	0030

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

Comments on this unit standard

Please contact Hanga-Aro-Rau Manufacturing, Engineering and Logistics Workforce Development Council qualifications@hangaarorau.nz if you wish to suggest changes to the content of this unit standard.