

Specification of Competency Standards
for the Testing, Inspection and Certification Industry
Unit of Competency

Functional Area - Testing Operations

Title	Perform fabric strength and performance tests
Code	105857L4
Range	This unit of competency (UoC) covers the abilities to carry out suitable fabric strength and performance tests on textile and garment products independently, record accurate test data and determine the fabric strength and performance of the products in testing laboratories.
Level	4
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge of fabric strength and performance and related tests</p> <ul style="list-style-type: none"> • Describe the physical properties of woven fabric, knitted fabric and non-woven fabric. • Describe the importance of conditioning and water regain that affect the physical performance of fabric. • Employ the principles and methods of carrying out fabric strength and performance tests, e.g. tensile strength, tear strength, bursting strength, seam properties, bonding strength, abrasion resistance, pilling resistance, snagging resistance, wrinkle recovery, stretch recovery, air permeability, water repellency, water resistance. • Specify the requirements of fabric strength and performance tests to selected type of textile and garment product. • Identify relevant fabric strength and performance test standards and specifications, e.g.: <ul style="list-style-type: none"> ○ international and national standards such as AATCC, ASTM, ISO, EN, DIN, AS/NZS, CAN/CGSB, WOOLMARK, JIS, BS, GB, ○ manufacturers' and/or clients' specifications. • Explain the principles and operation of testing equipment used for the physical performance tests, e.g., tensile tester, Elmendorf (tearing tester), bursting tester, inflated diaphragm (abrasion tester), Martindale (abrasion tester), ICI pilling box, random tumbler, Mace snag tester, rain tester, spray tester, hydrostatic tester, air permeability tester, wrinkle recovery tester, Fryma extension meter, temperature and humidity monitoring device. • Apply the concepts of uncertainty and equipment calibration to fabric strength and performance tests. <p>2. Perform fabric strength and performance tests</p> <ul style="list-style-type: none"> • Select appropriate test methods/standards, test plans, environmental conditions and test accessories for fabric strength and performance tests. • Apply appropriate conditions to the testing equipment, e.g.: <ul style="list-style-type: none"> ○ gauge length and force of tensile tester, ○ distance of clamps, distances between the axis and the top edges of the clamping jaws of Elmendorf tearing apparatus, ○ air flow of random tumble pilling tester, ○ rate of increase in water pressure for hydrostatic pressure test, ○ clamping distance of diaphragm bursting strength tester, ○ number of revolutions of pilling box, ○ pressure and diameter of abradant of Martindale (abrasion tester). • Prepare the required size and number of sample and apply appropriate conditioning atmosphere to the sample under test. • Carry out fabric strength and performance tests on the sample independently according to the test methods/standards. • Carry out required validation checks to confirm the environmental and equipment requirements are met.

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	<ul style="list-style-type: none"> • Record accurate test data and judge test results to confirm the fabric strength and performance of the test sample in compliance with the required specifications. <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Ensure all tests are carried out in compliance with good laboratory practices under relevant categories of standards. • Ensure integrity and confidentiality of laboratory data and information by observing the code of conduct as required by the standards and the organisation.
Assessment Criteria	<p>The integrated outcome requirements of this UoC are the abilities to:</p> <ul style="list-style-type: none"> • carry out fabric strength and performance tests on selected textile and garment product independently by applying appropriate testing equipment and environmental conditions according to the requirements of test methods/standards, • record accurate and reliable test data by data validation and verifying equipment calibration status, • judge test results to confirm the compliance of fabric strength and performance of the product against the relevant specifications of test methods/standards and/or manufacturers/clients.
Remark	