



Australian Government

MSTGN3022 Investigate applications and performance outcomes of technical textiles

Release: 1

MSTGN3022 Investigate applications and performance outcomes of technical textiles

Modification History

Release 1. Merges content of MSTTN2003 and MSTTN2006. Unit code, Title and Application changed. Elements and Performance Criteria restructured. Foundation Skills field populated. Range of Conditions removed with relevant information moved to Knowledge Evidence. Assessment Requirements clarified with generic foundation skills statements moved to appropriate section and duplication with Performance Criteria removed. Supersedes and is not equivalent to MSTTN2003 Use basic recognition techniques to identify technical and non-woven textiles and MSTTN2006 Identify purpose and performance outcomes of technical textile product.

Application

This unit describes the skills and knowledge required to source information about current applications of technical and non-woven textiles, their performance characteristics and the processes used for their production.

A technical textile is a textile product with one or more specific technical performance features, used as a stand-alone product or incorporated into another product. The technical textile application may occur as a result of new materials, new processes and new applications that result in the textile having the desired technical performance characteristic. It may be produced by a technical finish on an existing yarn or fabric or composed of a specially made technical yarn or fabric.

This unit applies to any individual whose role includes or relates to the production of technical textiles. The unit does not cover knowledge requiring special scientific or engineering study.

No licensing or certification requirements exist at the time of publication. Relevant legislation, industry standards and codes of practice within Australia must be applied.

Pre-requisite Unit

Nil

Competency Field

Textile production

Elements and Performance Criteria

Elements	Performance Criteria
----------	----------------------

Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Source information on technical textiles	1.1 Identify sources of current and authoritative information about technical textiles 1.2 Identify regulatory or standards frameworks that govern the production of technical textiles 1.3 Identify sustainability frameworks and contemporary approaches to sustainability that impact the production of technical textiles
2. Identify purpose and performance of technical textiles	2.1 Review information and identify key applications for technical textiles and their current and forecast demand in different markets 2.2 Identify performance features of technical textiles and the quality standards required in markets in which they will be used
3. Investigate processes used to generate performance features	3.1 Review information about the manufacturing processes required to achieve technical performance features 3.2 Identify the impact of quality requirements on production processes 3.3 Identify testing procedures used to assess quality or performance of technical textile products

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

- Reading skills to interpret diverse and unfamiliar information on technical textiles.

Unit Mapping Information

No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a203ec5c-de7d-406b-b3e1-8f1a9b76e92e>

Assessment Requirements for MSTGN3022 Investigate applications and performance outcomes of technical textiles

Modification History

Release 1. Merges content of MSTTN2003 and MSTTN2006. Unit code, Title and Application changed. Elements and Performance Criteria restructured. Foundation Skills field populated. Range of Conditions removed with relevant information moved to Knowledge Evidence. Assessment Requirements clarified with generic foundation skills statements moved to appropriate section and duplication with Performance Criteria removed. Supersedes and is not equivalent to MSTTN2003 Use basic recognition techniques to identify technical and non-woven textiles and MSTTN2006 Identify purpose and performance outcomes of technical textile product.

Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and demonstrated the ability to:

- source information about technical textiles from at least three different sources and determine and report on:
 - five application areas for technical textiles
 - the following aspects of at least two technical textiles:
 - primary purpose
 - intended performance
 - basic aspects of the manufacturing process
 - testing procedures relevant to purpose.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- sources of information about technical textiles
- basic aspects of the broader context that impacts technical textile production:
 - formal product standards or regulation
 - sustainability considerations
- difference between a woven or knitted technical textile and a non-woven technical textile
- contemporary and emerging applications of technical textiles in different industries:
 - agricultural
 - clothing – safety, performance
 - construction and engineering
 - geo-textiles
 - medical and hygiene products
 - monofilament fibres for computer technologies

- packaging
- sporting and leisure equipment
- transportation
- basic aspects of the types of technical effects sought from technical textiles:
 - abrasion resistance
 - anti-microbial and anti-fungal property
 - anti-static finish
 - bio compatibility
 - breathability
 - conversion of light to heat
 - digital operations
 - electrical conductivity or insulation
 - fire resistance or protection
 - flame retardant
 - low flammability
 - low or high permeability to gases and liquids
 - non-shrink properties
 - oxidation resistance
 - phase change as in fibres that can alter according to external conditions, such as temperature
 - resistance to chemicals
 - sun protection
 - warmth or insulation
 - water-repellent finish
- basic aspects of commonly-used processes for the production of technical textiles and the sustainability considerations associated with their use:
 - air and water jet entanglement
 - braiding
 - calendaring
 - circular knitting
 - coating
 - compressive shrinking
 - cropping
 - dry laid and spun bond non-woven manufacturing
 - fusing
 - heat setting
 - knotting
 - laminating
 - plaiting
 - raising

- seam sealing
- spray coating
- stitchbonding
- warp and weft knitting
- weaving
- types of testing for technical textiles:
 - application of surface finishes
 - breathability
 - colour fastness
 - colour matching
 - conductivity
 - dimensional measuring – shrinkage
 - flex cracking
 - FR properties – radiant and convective heat
 - mechanical tear tests
 - sun related tests – UV degradation, UPF+50
 - tests on raw materials, including fibres and yarns, intermediate and final fabrics
 - tests for moisture, stretch, gloss, texture, handle, tensile strength, stability, shrinkage, stretch and permeability
 - visual checking
 - weighing.
 -

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - sources of information about technical textiles.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a203ec5c-de7d-406b-b3e1-8f1a9b76e92e>