LMT00
Textiles, Clothing and Footwear Training Package

Volume 18 of 19
Technical Textiles and Nonwovens

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Textiles Clothing and Footwear Training Package LMT00 Version 3

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Before using this volume

The Textiles Clothing and Footwear Training Package comprises 19 volumes as follows:

Volume 1	General Information
Volume 2	Textile Production
Volume 3	Early Stage Wool Processing
Volume 4	Cotton Ginning
Volume 5	Textile Fabrication
Volume 6	Clothing Production
Volume 7	Millinery
Volume 8	Footwear Production
Volume 9	Footwear Repair
Volume 10	Leather Goods Production
Volume 11	Hide, Skin and Leather
Volume 12	Laundry Operations
Volume 13	Dry Cleaning Operations
Volume 14	TCF Mechanic/Technician
Volume 15	Diplomas
Volume 16	Generic Units
Volume 17	Medical Grade Footwear
Volume 18	**Technical Textiles and Nonwovens**
Volume 19	Applied Fashion Design and Technology

Users of Textiles Clothing and Footwear Training Package Version 3 will need to use Volume 1 and Volume 16 in conjunction with the sector volumes. Volume 1 contains information on Training Packages, specific details about Textiles Clothing and Footwear Training Package LMT00 Version 3, the qualifications frameworks for all sectors, a Users Guide and the Assessment Guidelines. Volume 16 contains TCF generic units.

Current version

The Textiles Clothing and Footwear Training Package is not a static document. Changes are made periodically to reflect the latest industry practices.

Before commencing any form of training or assessment, you must ensure delivery is from the *current version* of the Training Package.

To ensure you are complying with this requirement:

- Check the Print Version Number just below the copyright statement on the imprint pages or in the footer of your current Training Package.
- Access the ATP website (http://www.atpl.net.au) and check the latest Print Number.
- In cases where the Print Version Number is later than yours, the Print Version Modification History in the Training Package sample on the ATP website will indicate the changes that have been made.

The Modification History is available in Volume 1 of this Training Package as well as on the website of the developer of the Training Package: Manufacturing Skills Australia http://www.mskills.com.au.

Units of competency covered in this volume

This volume contains units of competency specific to the following qualifications:

LMT11106 Certificate I in Textiles Clothing and Footwear

LMT21606 Certificate II in Technical Textiles and Nonwovens

LMT31806 Certificate III in Technical Textiles and Nonwovens

Units of competency that do not have LMT as part of the code have been imported from other Training Packages. A list of the units of competency imported from other Training Packages is provided in Volume 1. Current versions of these units are available from the **National Training Information Service at: http://www.ntis.gov.au.**

The National Training Information Service (http://www.ntis.gov.au) also displays any changes in Units of Competency and the packaging of qualifications.

The term 'Unit of Competency' is sometimes referred to as 'unit'.

Technical Textiles and Nonwovens Units of Competency

LMTTN2001A Set up and operate a dry laid web forming machine

Unit descriptor

This unit covers the skills and knowledge to set up and operate dry laid web forming machines used to manufacture nonwoven textiles.

Prerequisites

Nil

Application

The unit covers the skills needed for initial start-up and product changeovers of dry laid web forming machines, including machine settings, first-off runs, adjustments and instructions to operators. The following types of webs are covered by this unit

Web bonding and web finishing are covered by units Undertake web bonding processes Undertake web conversion and finishing.

Work may be conducted in small to large scale enterprises and may involve individual and team activities.

The application of this unit is according to OH&S practices of the enterprise and workplace practices, which may include:

- requirements prescribed by legislation, awards, agreements and conditions of employment
- standard operating procedures
- work instructions
- oral, written and visual communication
- quality practices, including responsibility for maintenance of own work quality and contribution to quality improvement of team or section output
- housekeeping
- task related to environmental protection, waste disposal, pollution control, and recycling

Sector

Technical Textiles and Nonwovens

ELEMENTS	PERFORMANCE CRITERIA
1 Set up and load ***dry laid web*** forming machine	1.1 Specifications are checked to identify requirements for production. 1.2 Raw materials, containers and quantities are checked. 1.3 Machine settings are adjusted to meet product requirements. 1.4 Area around machine is cleaned during and on completion of setting and loading.
2 Operate and monitor dry laid web forming machine	2.1 Dry laid web forming machine is started and stopped according to manufacturer instructions and job requirements. 2.2 Machine operations are monitored to ensure safe and correct operation. 2.3 Waste is sorted. 2.4 Machine is cleaned when required. 2.5 Minor product process and machine faults are identified and corrected where necessary to meet specified requirements, and reported. 2.6 Major machine faults are reported. 2.7 Machine is operated according to ***OH&S practices***.
3 Check web quality	3.1 Formed web is checked against quality standards and production requirements. 3.2 Web faults and non-conformances are identified and rectified or

		reported.
4	Complete dry laid web forming operations	4.1 Dry laid web is despatched to next manufacturing or packing process. 4.2 Cleaning of area is completed to ensure work environment is maintained in a safe and productive manner. 4.3 Production records are accurately completed.

RANGE STATEMENT

The Range Statement relates to the unit as a whole. It allows for different work environments and situations that may affect performance. It describes contextual variables that may be used or encountered when applying the competency in work situations. It allows for different work practices and work and knowledge requirements as well as for differences between organisations and workplaces. The bold italic terms in the Elements and Performance Criteria are explained in this Range Statement. All work must comply with relevant Federal and State or Territory legislative or regulatory requirements.

Fibres may include

- fibre size – length 30-80 mm
- fibre size – 1.1-8.0 dtex (diameter)
- fibre types include:
  - rayon and other cellulosics
  - nylon
  - polyester
  - polypropylene
  - cotton
  - wool
  - glass
  - bi-component
- fibres may be used as 100% or as blends

Dry laid web may include

- web formed using any of the following techniques:
  - carded web – parallel laid
  - carded web – cross laid
  - carded web – random laid
  - air laid staple fibre web
  - high-loft webs

OH&S practices

OH&S practices include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the tasks described by this unit, and may relate to:

- manual handling techniques
- standard operating procedures
- personal protective equipment
- safe materials handling
- taking of rest breaks
- ergonomic arrangement of workplaces
- following marked walkways
- safe storage of equipment
- housekeeping
- reporting accidents and incidents
- environmental practices

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Elements and Performance Criteria, Range Statement, Key Competencies and Assessment Guidelines for this Training Package.

Critical aspects of evidence

Demonstrates skills and knowledge to:

- interpret production orders and schedules
- set and check machine settings to meet production requirements
- monitor web forming operations according to defined procedures and methods
- make minor adjustments
- check product samples against quality standards
- load and unload products
- complete records accurately and completely
- apply workplace OH&S practices in work operations

Consistency in performance

Consistently applies skills and knowledge when:

- organising work
- completing tasks according to instructions
- working systematically with attention to detail
- identifying improvements and avoiding damage
- using workplace practices
- using OH&S practices
- recording and reporting accidents and incidents
- assessing operational readiness of equipment
- recognising and adapting to cultural differences in the workplace, including modes of behaviour and interactions

Resource implications

Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OH&S practices.

Context for assessment

Assessment may occur on the job or in an appropriately simulated environment.

Interdependent assessment

This unit may be assessed independently or in combination with other relevant units.

Underpinning knowledge

Demonstrates knowledge of the dry web forming process, including:

- fibre types, including:
  - rayon and other cellulosics
  - nylon
  - polyester
  - polypropylene
  - cotton
  - wool
  - glass
  - bi-component
- fibre characteristics, including:
  - absorbency
  - abrasion resistance
  - modulus
  - web ‘handle’
  - moisture absorption

- chemical and temperature resistance
- melting point

- fibre measuring units including decitex and denier and fibre diameter – equation
- fibre or filament crimp
- advantages of fibre opening and blending:
  - component independent system
  - guarantee a homogeneous mixture
  - constant performance
  - flexible operation
  - high degree of automation
- working and stripping principles of carding
- different types of carded webs, e.g. parallel laid web, parallel laid web with spreading device, parallel laid web with scrambling, random laid web and random laid web with scrambling.
- layered and cross laid webs
- OH&S practices, including hazard identification and control measures
- quality practices
- workplace practices
- recording and reporting practices

Underpinning skills

Demonstrates skills to:

- check machine safety equipment and report any faults
- prepare materials for web forming
- load and unload materials
- start and stop machines according to specifications
- monitor machine operations including machine production readings
- recognise, rectify and report machine faults or problems as required
- clean machines as required
- check machine maintenance records
- recognise fault conditions
- read, interpret and follow information on work specifications, standard operating procedures and work instructions, and other reference material
- maintain accurate records
- communicate within the workplace
- sequence operations
- meet specifications
- clarify and check task-related information
- carry out work according to OH&S practices

KEY COMPETENCIES

The seven Key Competencies represent generic skills considered necessary for effective participation by an individual in the workplace. They focus on the application of knowledge and skills in an integrated way in workplace situations. There are three levels of performance defined within the Key Competencies. These are stand-alone levels and do not correspond to the AQF qualification levels.

Performance levels of Key Competencies

1 – Perform tasks effectively
2 – Manage tasks

3 – Use concepts for evaluating and reshaping tasks

Key Competency	Example	Level
Communicate ideas and information	Inconsistencies in machine performance are documented according to workplace procedures.	2
Collect, analyse and organise information	Production outcomes are recorded.	2
Plan and organise activities	Fibre is prepared for web forming processes.	2
Work with others and in teams	Tasks are completed in team environment.	2
Use mathematical ideas and techniques	Machine settings are checked for desired product outcome.	2
Solve problems	Faults are recognised and addressed.	2
Use technology	Machine is used efficiently and safely.	2

LMTTN2002A Set up and operate a spun bond web forming machine

Unit descriptor

This unit covers the skills and knowledge to set up and operate spun bond web forming machines used to manufacture nonwoven textiles.

Prerequisites

Nil

Application

The unit covers the skills needed for initial start-up and product changeovers of spun bond web forming machines, including machine settings, first-off runs and adjustments. Web bonding and web finishing are covered by units LMTTN2004A Undertake web bonding processes and LMTTN2005A Undertake web conversion and finishing

Work may be conducted in small to large scale enterprises and may involve individual and team activities.

The application of this unit is according to OH&S practices of the enterprise and workplace practices, which may include:

- requirements prescribed by legislation, awards, agreements and conditions of employment
- standard operating procedures
- work instructions
- oral, written and visual communication
- quality practices, including responsibility for maintenance of own work quality and contribution to quality improvement of team or section output
- housekeeping
- tasks related to environmental protection, waste disposal, pollution control, and recycling

Sector

Technical Textiles and Nonwovens

ELEMENTS	PERFORMANCE CRITERIA
1 Set up and load *spun bond web forming machine*	1.1 Specifications are checked to identify requirements for ***filament*** production.
	1.2 Raw materials containers and quantities are checked.
	1.3 Machine settings are adjusted to meet product requirements.
	1.4 Area around machine is cleaned during and on completion of setting and loading.
2 Operate and monitor spun bond web forming machine	2.1 Spun bond web forming machine is started and stopped according to machine manufacturer instructions and job requirements.
	2.2 Machines operations are monitored to ensure safe and correct operation.
	2.3 Waste is sorted.
	2.4 Machine is cleaned when required.
	2.5 Minor product process and machine faults are identified and corrected where necessary to meet specified requirements and are reported.
	2.6 Major machine faults are reported.
	2.7 Machine is operated according to ***OH&S practices***.
3 Check web quality	3.1 Formed web is checked against quality standards and production requirements.
	3.2 Web faults and non-conformances are identified and rectified or

	reported.
4 Complete operations	4.1 *Spun bond web* is dispatched to bonding or finishing process. 4.2 Cleaning of area is completed to ensure work environment is maintained in a safe and productive manner. 4.3 Production records are accurately completed.

RANGE STATEMENT

The Range Statement relates to the unit as a whole. It allows for different work environments and situations that may affect performance. It describes contextual variables that may be used or encountered when applying the competency in work situations. It allows for different work practices and work and knowledge requirements as well as for differences between organisations and workplaces. The bold italic terms in the Elements and Performance Criteria are explained in this Range Statement. All work must comply with relevant Federal and State or Territory legislative or regulatory requirements.

Filaments are	• continuous threads and include:
	  • size – 1.1-8.0 dtex (diameter)
	  • types including polyester, polypropylene

Spun bond web forming machine may include	• extrusion, spinning, attenuating, orientation. lay down, web carrying or web bonding machine.
Spun bond web refers to	• the melt spinning of polymers to produce continuous filaments (threads) of polymer which are laid to form a web, which is then bonded and finished.
OH&S practices	OH&S practices include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the tasks described by this unit, and may relate to: • manual handling techniques • standard operating procedures • personal protective equipment • safe materials handling • taking of rest breaks • ergonomic arrangement of workplaces • following marked walkways • safe storage of equipment • housekeeping • reporting accidents and incidents • environmental practices

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Elements and Performance Criteria, Range Statement, Key Competencies and Assessment Guidelines for this Training Package.

Critical aspects of evidence	Demonstrates skills and knowledge to: • interpret production orders and schedules • set and check machine settings to meet production requirements • monitor web forming operations according to defined procedures and methods • make minor adjustments • check product samples against quality standards • load and unload products • complete records accurately and completely

	• apply workplace OH&S practices in work operations
Consistency in performance	Consistently applies skills and knowledge when: • organising work • completing tasks according to instructions • working systematically with attention to detail • identifying improvements and avoiding damage • using workplace practices • using OH&S practices • recording and reporting accidents and incidents • assessing operational readiness of equipment • recognising and adapting to cultural differences in the workplace, including modes of behaviour and interactions
Resource implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OH&S practices.
Context for assessment	Assessment may occur on the job or in an appropriately simulated environment.
Interdependent assessment	This unit may be assessed independently or in combination with other relevant units.

Underpinning knowledge	Demonstrates knowledge of:
	• operational variables, including:
	  • polymer throughput
	  • air throughput
	  • spinneret configuration: hole size and distance to collector
	  • spinning, drawing and deposition options and techniques
	  • bonding techniques and options.
	• filament types, including
	  • polyester
	  • polypropylene
	• filament characteristics, including
	  • spinnability
	  • filament structure
	  • filament crimp
	• measuring units, including decitex and denier.
	• OH&S practices, including hazard identification and control measures
	• quality practices
	• workplace practices
	• recording and reporting practices

Underpinning skills	Demonstrates skills to: • check machine safety equipment and report any faults • prepare materials for web forming • load and unload materials • start and stop machines according to specifications • monitor machine operations, including machine production readings • recognise, rectify and report machine faults or problems as required • clean machines as required • check machine maintenance records

- recognise fault conditions
- read, interpret and follow information on work specifications, standard operating procedures and work instructions, and other reference material
- maintain accurate records
- communicate within the workplace
- sequence operations
- meet specifications
- clarify and check task-related information
- carry out work according to OH&S practices

KEY COMPETENCIES

The seven Key Competencies represent generic skills considered necessary for effective participation by an individual in the workplace. They focus on the application of knowledge and skills in an integrated way in workplace situations. There are three levels of performance defined within the Key Competencies. These are stand-alone levels and do not correspond to the AQF qualification levels.

Performance levels of Key Competencies

1 – Perform tasks effectively
2 – Manage tasks
3 – Use concepts for evaluating and reshaping tasks

Key Competency	Example	Level
Communicate ideas and information	Inconsistencies in machine performance are documented according to workplace procedures.	2
Collect, analyse and organise information	Production outcomes are recorded.	2
Plan and organise activities	Fibre is prepared for web forming processes.	2
Work with others and in teams	Tasks are completed in team environment.	2
Use mathematical ideas and techniques	Machine settings are checked for desired product outcome.	2
Solve problems	Faults are recognised and addressed.	2
Use technology	Machine is used efficiently and safely.	2

LMTTN2003A Use basic recognition techniques to identify technical and nonwoven textiles

Unit descriptor

This unit covers the skills and knowledge to recognise the different types of technical textiles and nonwoven materials, including component fibres and yarns. The unit includes underpinning knowledge on the difference between a woven or knitted technical textile and a nonwoven textile.

Prerequisites

Nil

Application

The unit applies to production of technical textiles and nonwoven textiles, generally known in industry as nonwovens. The unit covers the recognition of textiles manufactured using natural or synthetic fibres or yarns. The recognition techniques do not require laboratory skills. The fibres forming the technical or nonwoven textile may be a staple or continuous filament. Technical textiles covered by this unit are textiles used for engineering, safety, agricultural, medical and other specialised non-apparel furnishing and floor covering applications. Nonwoven textiles covered by this unit may be made by mechanically, chemically or thermally interlocking layers or networks of fibres or filaments.

Work may be conducted in small to large scale enterprises and may involve individual and team activities.

The application of this unit is according to OH&S practices of the enterprise and workplace practices, which may include:

- requirements prescribed by legislation, awards, agreements and conditions of employment
- standard operating procedures
- work instructions
- oral, written and visual communication
- quality practices, including responsibility for maintenance of own work quality and contribution to quality improvement of team or section output
- housekeeping
- tasks related to environmental protection, waste disposal, pollution control, and recycling

Sector

Technical Textiles and Nonwovens

ELEMENTS	PERFORMANCE CRITERIA
1 Identify fibres, yarns and other raw materials	1.1 Natural and synthetic ***fibres and yarns*** are correctly identified using recognition techniques.
	1.2 ***Non-fibre-based materials*** used in manufacture of technical or nonwoven product are correctly identified.
2 Identify and classify technical and nonwoven textiles	2.1 Sample of material is correctly taken.
	2.2 Sample is correctly identified as a ***woven***, ***knitted*** or ***nonwoven*** textile.
	2.3 Appropriate ***tests*** are used to classify intermediate and final ***technical*** and nonwoven textile product.
	2.4 Tests are conducted according to ***OH&S practices***.

RANGE STATEMENT

The Range Statement relates to the unit as a whole. It allows for different work environments and situations that may affect performance. It describes contextual variables that may be used or encountered when applying the competency in work situations. It allows for different work practices and work and knowledge requirements as well as for differences between organisations and workplaces. The bold italic terms in the Elements and Performance Criteria are explained in this Range Statement. All work must comply with relevant Federal and State or Territory legislative or regulatory requirements.

Fibres and yarns	Fibres and yarns may be of natural or synthetic origin and include: • spun • ply • combo • blended • crimped • monofilament • multifilament • staple spun • staple or continuous filaments • fusible fibres • bi-components • copolyesters
Non-fibre-based materials	Other materials used in the manufacture of technical textile or nonwoven products. Examples include paper or other materials used in wrapping, raw materials chemicals either in liquid, pellet or solid form, catalyst chemicals, etc.
Woven textile	A textile fabric produced by interlacing two yarns of similar materials so that the yarns cross each other at right angles to produce the fabric
Knitted textile	Fabric produced by interlocking a series of loops of one or more yarns
Nonwoven	A manufactured sheet, web, batt or other product made up of directionally or randomly oriented fibres, or filaments bonded by friction, cohesion and/or adhesion, excluding paper. Nonwovens are made by mechanically, chemically or thermally interlocking layers or networks of fibres or filaments and may be based on a scrim (mesh into which fibres are inserted) or scrimless.
Technical	Technical textiles are textiles that have been manufactured for special performance properties and applications and are generally non-apparel, carpet or furnishing products unless a specific technical feature beyond what is normally found in clothing, carpet or furnishing products has been added. An example would be special fire retardant clothing.
Tests	Tests may include visual checking, colour matching, weighing, dimensional measuring and tests for moisture, stretch, gloss, texture, handle, tensile strength, stability, shrinkage, stretch, permeability, results of calendering, application of surface finishes. Tests on raw materials, including fibres and yarns, intermediate and final fabrics.
OH&S practices	OH&S practices include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the tasks described by this unit, and may relate to: • manual handling techniques • standard operating procedures • personal protective equipment

- safe materials handling
- taking of rest breaks
- ergonomic arrangement of workplaces
- following marked walkways
- safe storage of equipment
- housekeeping
- reporting accidents and incidents
- environmental practices

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Elements and Performance Criteria, Range Statement, Key Competencies and Assessment Guidelines for this Training Package.

Critical aspects of evidence	Demonstrates skills and knowledge to: • identify natural and synthetic fibres and yarns • differentiate between woven, knitted and nonwoven textiles • undertake appropriate tests
Consistency in performance	Consistently applies skills and knowledge when: • organising work • completing tasks according to instructions • working systematically with attention to detail • identifying improvements and avoiding damage • using workplace practices • using OH&S practices • recording and reporting accidents and incidents • assessing operational readiness of equipment • recognising and adapting to cultural differences in the workplace, including modes of behaviour and interactions
Resource implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OH&S practices.
Context for assessment	Assessment may occur on the job or in an appropriately simulated environment.
Interdependent assessment	This unit may be assessed independently or in combination with other relevant units.
Underpinning knowledge	Demonstrates knowledge of: • difference between woven, knitted and nonwoven textiles • difference between natural and synthetic fibres • OH&S practices, including hazard identification and control measures • quality practices • workplace practices • recording and reporting practices
Underpinning skills	Demonstrates skills to: • read, interpret and follow information on work specifications, standard operating procedures and work instructions, and other reference material • maintain accurate records • communicate within the workplace • sequence operations

- meet specifications
- clarify and check task-related information
- carry out work according to OH&S practices

KEY COMPETENCIES

The seven Key Competencies represent generic skills considered necessary for effective participation by an individual in the workplace. They focus on the application of knowledge and skills in an integrated way in workplace situations. There are three levels of performance defined within the Key Competencies. These are stand-alone levels and do not correspond to the AQF qualification levels.

Performance levels of Key Competencies

1 – Perform tasks effectively
2 – Manage tasks
3 – Use concepts for evaluating and reshaping tasks

Key Competency	Example	Level
Communicate ideas and information	Types of textiles are described.	1
Collect, analyse and organise information	Information is accessed and used to assist in identification of textiles.	2
Plan and organise activities	Sample of textile is taken.	1
Work with others and in teams	Questions are used to access information.	2
Use mathematical ideas and techniques	Results of tests are calculated.	2
Solve problems	Appropriate tests are selected.	2
Use technology	Appropriate textile tests are undertaken.	2

LMTTN2004A Undertake web bonding processes

Unit descriptor

This unit covers the skills and knowledge to undertake web bonding processes.

Prerequisites

Nil

Application

The unit covers the skills needed to undertake a web bonding process.

It applies to chemical, thermal, mechanical and latex bonding processes.

Work may be conducted in small to large scale enterprises and may involve individual and team activities.

The application of this unit is according to OH&S practices of the enterprise and workplace practices, which may include:

- requirements prescribed by legislation, awards, agreements and conditions of employment
- standard operating procedures
- work instructions
- oral, written and visual communication
- quality practices, including responsibility for maintenance of own work quality and contribution to quality improvement of team or section output
- housekeeping
- tasks related to environmental protection, waste disposal, pollution control, and recycling

Sector

Technical Textiles and Nonwovens

ELEMENTS	PERFORMANCE CRITERIA
1 Prepare for web bonding	1.1 Specifications are checked to identify requirements for production.
	1.2 ***Web bonding process*** is identified and where options exist, correct web bonding process is selected according to product requirements.
	1.3 Bonding raw material supply is checked where appropriate.
	1.4 Machine controls are set to meet product requirements.
2 Undertake web bonding	2.1 Formed web supply and speed is checked for conformance to specification.
	2.2 Web bonding process is monitored and operational parameters are adjusted to meet product requirements.
	2.3 ***Machine operations*** are monitored to ensure safe and correct operation.
	2.4 Minor product process and machine faults are identified and corrected where necessary to meet specified requirements and are reported.
	2.5 Major machine faults are reported.
	2.6 Machine is cleaned when required.
	2.7 Machine is operated according to ***OH&S practices***.
3 Check bonded web quality	3.1 Bonded web is checked against quality standards and production requirements.
	3.2 Bonded web faults and non-conformances are identified and rectified or reported.
4 Complete web bonding process	4.1 Bonded web is sent for web conversion and finishing or next manufacturing or packing process.

4.2 Cleaning of area is completed to ensure work environment is maintained in a safe and productive manner.

4.3 Production records are accurately completed.

RANGE STATEMENT

The Range Statement relates to the unit as a whole. It allows for different work environments and situations that may affect performance. It describes contextual variables that may be used or encountered when applying the competency in work situations. It allows for different work practices and work and knowledge requirements as well as for differences between organisations and workplaces. The bold italic terms in the Elements and Performance Criteria are explained in this Range Statement. All work must comply with relevant Federal and State or Territory legislative or regulatory requirements.

Web bonding process

- The web bonding process may include:
  - chemical bonding
  - thermal bonding
  - mechanical bonding
- Chemical bonding processes include:
  - solvent bonding
  - foam bonding
  - hydrogen bonding
  - print bonding
  - latex addition to formed web
  - inorganic binders
- Thermal bonding includes calender bonding, including engraved calender bonding and air bonding, and covers the following fibres:
  - fusible fibres
  - bi-components
  - copolyesters
- Mechanical bonding processes covered include:
  - needlepunch
  - stitchbond
  - hydroentanglement

Machine operations may include

- speed settings for web progression
- heat settings
- solution settings
- needlepunch settings
- settings made using computer, mechanical and electronic controls

OH&S practices	OH&S practices include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the tasks described by this unit, and may relate to: • manual handling techniques • standard operating procedures • personal protective equipment • safe materials handling • taking of rest breaks • ergonomic arrangement of workplaces • following marked walkways • safe storage of equipment • housekeeping • reporting accidents and incidents • environmental practices

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Elements and Performance Criteria, Range Statement, Key Competencies and Assessment Guidelines for this Training Package.

Critical aspects of evidence	Demonstrates skills and knowledge to: • interpret production orders and schedules • set and check machine settings to meet production requirements • monitor web bonding operations according to defined procedures and methods • make minor adjustments • check product samples against quality standards • load and unload products • complete records accurately and completely • apply OH&S practices in work operations
Consistency in performance	Consistently applies skills and knowledge when: • organising work • completing tasks according to instructions • working systematically with attention to detail • identifying improvements and avoiding damage • using workplace practices • using OH&S practices • recording and reporting accidents and incidents • assessing operational readiness of equipment • recognising and adapting to cultural differences in the workplace, including modes of behaviour and interactions
Resource implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OH&S practices.
Context for assessment	Assessment may occur on the job or in an appropriately simulated environment.
Interdependent assessment	This unit may be assessed independently or in combination with other relevant units.
Underpinning knowledge	Demonstrates knowledge of: • underpinning knowledge of the web bonding process, including

	chemical bonding (e.g. foam, spray, or print bonding), thermal bonding, mechanical bonding • where chemical bonding is used knowledge includes binding agent preparation and settings • thermal bonding knowledge includes calender and air bonding and covers fusible, bi-component and copolyester fibres • mechanical bonding includes needlepunch, stitchbond and hydroentanglement • OH&S practices, including hazard identification and control measures • quality practices • workplace practices • recording and reporting practices
Underpinning skills	Demonstrates skills to: • check machine safety equipment and report any faults • prepare materials for web forming if required • load and unload materials • start and stop machines according to specifications • monitor machine operations, including machine production readings • recognise, rectify and report machine faults or problems as required • clean machines as required • check machine maintenance records • recognise fault conditions • read, interpret and follow information on work specifications, standard operating procedures and work instructions, and other reference material • maintain accurate records • communicate within the workplace • sequence operations • meet specifications • clarify and check task-related information • carry out work according to OH&S practices

KEY COMPETENCIES

The seven Key Competencies represent generic skills considered necessary for effective participation by an individual in the workplace. They focus on the application of knowledge and skills in an integrated way in workplace situations. There are three levels of performance defined within the Key Competencies. These are stand-alone levels and do not correspond to the AQF qualification levels.

Performance levels of Key Competencies

1 – Perform tasks effectively
2 – Manage tasks
3 – Use concepts for evaluating and reshaping tasks

Key Competency	Example	Level
Communicate ideas and information	Production specifications are entered into the machine.	2
Collect, analyse and organise information	Production outcomes are recorded.	2
Plan and organise activities	Fibre is prepared for web bonding processes.	2
Work with others and in	Tasks are completed in team environment.	2

teams		
Use mathematical ideas and techniques	Machine settings are checked for desired product outcome.	2
Solve problems	Faults are recognised and addressed.	2
Use technology	Machine is used efficiently and safely.	2

LMTTN2005A Undertake web conversion and finishing

Unit descriptor

This unit covers the skills and knowledge to undertake web conversion and finishing processes for nonwoven textiles.

Prerequisites

Nil

Application

The unit covers the skills needed to convert bonded web into product ready for finishing and packing processes and to complete required finishing and packing processes.

Work may be conducted in small to large scale enterprises and may involve individual and team activities.

The application of this unit is according to OH&S practices of the enterprise and workplace practices, which may include:

- requirements prescribed by legislation, awards, agreements and conditions of employment
- standard operating procedures
- work instructions
- oral, written and visual communication
- quality practices, including responsibility for maintenance of own work quality and contribution to quality improvement of team or section output
- housekeeping
- tasks related to environmental protection, waste disposal, pollution control, and recycling

Sector

Technical Textiles and Nonwovens

ELEMENTS	PERFORMANCE CRITERIA
1 Prepare for web conversion	1.1 Specifications are checked to identify requirements for production.
	1.2 ***Web conversion and finishing process*** is selected according to product specification.
	1.3 Set ***web guides and tensions*** for product according to specifications.
	1.4 Machine controls are set to meet product requirements.
2 Undertake web conversion and finishing	2.1 Bonded web supply and speed is checked for conformance to specification.
	2.2 Web conversion and finishing process is monitored and operational parameters are adjusted to meet product requirements.
	2.3 ***Machine operations*** are monitored to ensure safe and correct operation according to ***OH&S practices***.
	2.4 Web or cylinder alignment problems are identified and rectified.
	2.5 Other minor product process and machine faults are identified and corrected where necessary to meet specified requirements and are reported.
	2.5 Major machine faults are reported.
	2.6 Machine is cleaned when required.
3 Check quality of finished and converted web	3.1 Finished and converted web is checked against quality standards and production requirements.
	3.2 Faults and non-conformances are identified and rectified or reported.

4 Complete finishing process	4.1 Finished web or nonwoven product is packed and labeled according to order and product requirement.
	4.2 Cleaning of area is completed to ensure work environment is maintained in a safe and productive manner.
	4.3 Production records are accurately completed.

RANGE STATEMENT

The Range Statement relates to the unit as a whole. It allows for different work environments and situations that may affect performance. It describes contextual variables that may be used or encountered when applying the competency in work situations. It allows for different work practices and work and knowledge requirements as well as for differences between organisations and workplaces. The bold italic terms in the Elements and Performance Criteria are explained in this Range Statement. All work must comply with relevant Federal and State or Territory legislative or regulatory requirements.

Web conversion and finishing process may include	• web cutting, slitting and rereeling
	• base web finishing – microcrepeing
	• base web finishing – coating
	• base web finishing – extrusion coating
	• base web finishing – flocking
	• base web finishing – corona/plasma
	• chemical finishing treatment
	• coating of webs using closed and open systems
	• chemical treatment such as:
	  • fluorochemical treatment for aqueous liquid repellency
	  • silicone treatment for aqueous liquid repellency
	  • anti-microbial treatment
	  • flame retardency treatment
	  • microencapsulation

Machine operations may include	• settings made using computer, mechanical and electronic controls
Web guides and tensions	• web guides may be mechanical, electronic or pneumatic • tensions are set by mechanical, electronic or pneumatic means
OH&S practices	OH&S practices include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the tasks described by this unit, and may relate to: • manual handling techniques • standard operating procedures • personal protective equipment • safe materials handling • taking of rest breaks • ergonomic arrangement of workplaces • following marked walkways • safe storage of equipment • housekeeping • reporting accidents and incidents • environmental practices

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Elements and Performance Criteria, Range Statement, Key Competencies and Assessment Guidelines for this Training Package.

Critical aspects of evidence	Demonstrates skills and knowledge to: • interpret production orders and schedules • set and check machine settings to meet production requirements • set web guides and tensions • monitor web conversion and finishing operations according to defined procedures and methods • make minor adjustments • check product samples against quality standards • load and unload products • complete records accurately and completely • apply OH&S practices in work operations
Consistency in performance	Consistently applies skills and knowledge when: • organising work • completing tasks according to instructions • working systematically with attention to detail • identifying improvements and avoiding damage • using workplace practices • using OH&S practices • recording and reporting accidents and incidents • assessing operational readiness of equipment • recognising and adapting to cultural differences in the workplace, including modes of behaviour and interactions
Resource implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OH&S practices.
Context for assessment	Assessment may occur on the job or in an appropriately simulated environment.
Interdependent assessment	This unit may be assessed independently or in combination with other relevant units.
Underpinning knowledge	Demonstrates knowledge of: • web conversion and finishing processes, including effect of process on web and desired performance of finished product • safe handling requirements for chemicals • OH&S practices, including hazard identification and control measures • quality practices • workplace practices • recording and reporting practices
Underpinning skills	Demonstrates skills to: • check machine safety equipment and report any faults • prepare bonded web forming for converted and finishing • load and unload materials according to machine and workplace practices • start and stop machines according to specifications • monitor machine operations, including machine production readings

- recognise, rectify and report machine faults or problems as required
- clean machines as required
- check machine maintenance records
- recognise fault conditions
- read, interpret and follow information on work specifications, standard operating procedures and work instructions, and other reference material
- maintain accurate records
- communicate within the workplace
- sequence operations
- meet specifications
- clarify and check task-related information
- carry out work according to OH&S practices

KEY COMPETENCIES

The seven Key Competencies represent generic skills considered necessary for effective participation by an individual in the workplace. They focus on the application of knowledge and skills in an integrated way in workplace situations. There are three levels of performance defined within the Key Competencies. These are stand-alone levels and do not correspond to the AQF qualification levels.

Performance levels of Key Competencies

1 – Perform tasks effectively
2 – Manage tasks
3 – Use concepts for evaluating and reshaping tasks

Key Competency	Example	Level
Communicate ideas and information	Inconsistencies in machine performance are documented according to workplace procedures.	2
Collect, analyse and organise information	Production outcomes are recorded.	2
Plan and organise activities	Materials and equipment are prepared for web conversion processes.	2
Work with others and in teams	Tasks are completed in team environment.	2
Use mathematical ideas and techniques	Machine settings are checked for desired product outcome.	2
Solve problems	Faults are recognised and addressed.	2
Use technology	Machine is used efficiently and safely.	2

LMTTN2006A Identify purpose and performance outcomes of technical textile product

Unit descriptor

This unit covers the skills and knowledge to identify the purpose and desired performance characteristics of a technical textile or nonwoven product.

Prerequisites

LMTTN2003A Use basic recognition techniques to identify technical and nonwoven textiles

Application

The unit applies to the identification of the purpose and performance characteristics of textiles that have been manufactured for special technical purposes. A technical textile may be produced by a technical finish on a normal yarn or fabric or composed of a specially made technical yarn or fabric.

The unit applies to employees who are required to have a basic understanding of the product being manufactured such as team leaders and senior operators with responsibility for explaining the enterprise's products to visitors and other employees. The unit does not cover knowledge of the technical textile requiring special scientific or engineering study.

A technical textile is generally not a clothing, carpet or furnishing product unless a specific technical feature beyond what is normally found in clothing, carpet or furnishing has been added. An example would be special fire retardant clothing.

Applications of technical textiles may be for medical, hygiene, sporting, transportation, construction, agricultural and other purposes. The technical textile may be 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.

Work may be conducted in small to large scale enterprises and may involve individual and team activities.

The application of this unit is according to OH&S practices of the enterprise and workplace practices, which may include:

- requirements prescribed by legislation, awards, agreements and conditions of employment
- standard operating procedures
- work instructions
- oral, written and visual communication
- quality practices, including responsibility for maintenance of own work quality and contribution to quality improvement of team or section output
- housekeeping
- tasks related to environmental protection, waste disposal, pollution control, and recycling

Sector

Technical Textiles and Nonwovens

ELEMENTS	PERFORMANCE CRITERIA
1 Identify ***purpose*** of technical textile	1.1 Purpose of technical textile is identified. 1.2 Industry and commercial applications of technical textile are identified.
2 Describe performance	2.1 Performance features of technical textile are described.

features of technical textile	2.2 Special conditions of use of technical textile are described. 2.3 Performance or quality standards relating to technical textile are identified.
3 Describe ***process*** used to generate technical textile performance features	3.1 Technical textile product manufacturing ***process*** is briefly explained. 3.2 Impact of quality on production processes is identified. 3.3 Testing procedures used to assess quality or performance of technical textile product are identified.

RANGE STATEMENT

The Range Statement relates to the unit as a whole. It allows for different work environments and situations that may affect performance. It describes contextual variables that may be used or encountered when applying the competency in work situations. It allows for different work practices and work and knowledge requirements as well as for differences between organisations and workplaces. The bold italic terms in the Elements and Performance Criteria are defined in this Range Statement. All work must comply with relevant Federal and State or Territory legislative or regulatory requirements.

Purpose includes

- the technical effect desired to be achieved by the textile product as well as the application industry or sector that uses the product. Technical effects may include:
  - abrasion resistance
  - low or high permeability to gases and liquids
  - flame retardant
  - low flammability
  - resistance to chemicals
  - protection against sunlight caused weathering
  - oxidation resistance
  - fire resistance or protection
  - water-repellent finish
  - anti-static finish
  - anti-microbial and anti-fungal property
  - non-shrink properties
  - electrical conductivity or insulation
  - phase change as in fibres that can alter according to external conditions such as temperature
  - conversion of light to heat
  - bio compatibility
- Application industries and sectors may include:
  - transport
  - industrial products and components
  - medical and hygiene products
  - domestic equipment and furnishings (e.g. fibrefill and insulation applications)
  - clothing components, e.g. threads and interlinings
  - agriculture, horticulture and fishing
  - construction and engineering
  - packaging and containment
  - sport and leisure equipment and performance fabric and clothing
  - geotextiles
  - protective and safety clothing and textiles

	• monofilament fibres for computer technologies
Performance means	• the type and extent of the technical effect of the textile product being manufactured and the conditions under which the performance of the textile product meets specifications. Examples would be: • an air filter fabric that removes contaminants of a certain size subject to regular cleaning; • an insulation material that is effective within a set temperature range; • impact resistant clothing that is effective against set types of projectiles
Process	• The technical textile manufacturing process may be based on using special technical fibres or yarns, or a finishing process to a woven, knitted or nonwoven textile. Processes used may include: • plaiting • knotting • weaving • warp and weft knitting • stitchbonding • braiding • dry laid and spun bond nonwoven manufacturing • calendering • raising • cropping • compressive shrinking • heat setting • coating • laminating • fusing

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Elements and Performance Criteria, Range Statement, Key Competencies and Assessment Guidelines for this Training Package.

Critical aspects of evidence	Demonstrates skills and knowledge to: • identify primary purpose of technical textile • identify application area of technical textile • identify intended performance of the technical textile • identify manufacturing process for the technical textile
Consistency in performance	Consistently applies skills and knowledge when: • organising work • completing tasks according to instructions • working systematically with attention to detail • identifying improvements and avoiding damage • using workplace practices • using OH&S practices • recording and reporting accidents and incidents • assessing operational readiness of equipment • recognising and adapting to cultural differences in the workplace, including modes of behaviour and interactions

Resource implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OH&S practices.
Context for assessment	Assessment may occur on the job or in an appropriately simulated environment.
Interdependent assessment	This unit may be assessed independently or in combination with other relevant units.
Underpinning knowledge	Demonstrates knowledge of: • purpose, manufacturing process and performance characteristics of technical textiles • OH&S practices, including hazard identification and control measures • quality practices • workplace practices • recording and reporting practices
Underpinning skills	Demonstrates skills to: • read, interpret and follow information on work specifications, standard operating procedures and work instructions, and other reference material • communicate within the workplace • identify operation sequence • clarify and check task-related information • carry out work according to OH&S practices

KEY COMPETENCIES

The seven Key Competencies represent generic skills considered necessary for effective participation by an individual in the workplace. They focus on the application of knowledge and skills in an integrated way in workplace situations. There are three levels of performance defined within the Key Competencies. These are stand-alone levels and do not correspond to the AQF qualification levels.

Performance levels of Key Competencies

1 – Perform tasks effectively
2 – Manage tasks
3 – Use concepts for evaluating and reshaping tasks

Key Competency	Example	Level
Communicate ideas and information	Task procedures are discussed with supervisor.	1
Collect, analyse and organise information	Work pieces are received and checked for compliance with workplace standards.	1
Plan and organise activities	Work is prepared for activity.	1
Work with others and in teams	Activities are conducted in cooperation with others.	1
Use mathematical ideas and techniques	Work positioning requirements are determined.	1
Solve problems	Faults are reported.	1
Use technology	Specialised equipment is used effectively and safely.	2

LMTTN2007A Conduct technical textile mechanical finishing processes

Unit descriptor

This unit covers the skills and knowledge to conduct technical textile mechanical finishing processes.

Prerequisites

Nil

Application

The unit applies to finishing processes used in the production of technical textiles. Processes may include heat setting, scouring, calendering, singeing, impregnation, raising, cropping, and compressive shrinkage. The unit may apply to the conduct of mechanical finishing processes.

Work may be conducted in small to large scale enterprises and may involve individual and team activities.

The application of this unit is according to OH&S practices of the enterprise and workplace practices, which may include:

- requirements prescribed by legislation, awards, agreements and conditions of employment
- standard operating procedures
- work instructions
- oral, written and visual communication
- quality practices, including responsibility for maintenance of own work quality and contribution to quality improvement of team or section output
- housekeeping
- tasks related to environmental protection, waste disposal, pollution control, and recycling

Sector

Technical Textiles and Nonwovens

ELEMENTS	PERFORMANCE CRITERIA
1 Prepare for mechanical finishing processes	1.1 Appropriate checks are made to ensure that textile fabric or web is ready for ***mechanical finishing processes***.
	1.2 Appropriate pre finishing tests are conducted if required.
	1.3 Work area is prepared according to ***OH&S practices***.
	1.4 Specialised machine is prepared and adjusted according to product finishing specifications required for work.
	1.5 Problems are reported and recorded.
2 Operate mechanical finishing machines	2.1 Mechanical finishing machines are operated.
	2.2 OH&S practices are followed.
	2.3 Mechanical finishing machines are checked during operation and adjusted to ensure optimum performance.
	2.4 Any machine or product faults identified are reported and recorded.
	2.5 ***Technical textile*** is assessed for compliance with quality standards and product finishing specifications.
3 Despatch completed work	3.1 Technical textile production is checked against quality standards and job requirements.
	3.2 Appropriate tests and sampling are conducted if required.
	3.3 Technical textile production is directed to next operation.
	3.4 Work documentation is completed as required.

RANGE STATEMENT

The Range Statement relates to the unit as a whole. It allows for different work environments and situations that may affect performance. It describes contextual variables that may be used or encountered when applying the competency in work situations. It allows for different work practices and work and knowledge requirements as well as for differences between organisations and workplaces. The bold italic terms in the Elements and Performance Criteria are explained in this Range Statement. All work must comply with relevant Federal and State or Territory legislative or regulatory requirements.

Mechanical finishing processes may include	• heat setting • scouring • calendering • singeing • impregnation • raising • cropping • compressive shrinkage
OH&S practices	OH&S practices include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the tasks described by this unit, and may relate to: • manual handling techniques • standard operating procedures • personal protective equipment • safe materials handling • taking of rest breaks • ergonomic arrangement of workplaces • following marked walkways • safe storage of equipment • housekeeping • reporting accidents and incidents • environmental practices
Technical textile	Technical textiles are textile products that have been manufactured for special technical performance and applications. A clothing, carpet or furnishing textile product is generally not regarded as a technical textile unless a specific technical feature beyond what is normally found in clothing, carpet or furnishing has been added. An example would be special fire retardant clothing.

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Elements and Performance Criteria, Range Statement, Key Competencies and Assessment Guidelines for this Training Package.

Critical aspects of evidence	Demonstrates skills and knowledge to: • safely set and operate technical textile mechanical finishing machines • identify machine or process faults • follow job specifications and orders
Consistency in performance	Consistently applies skills and knowledge when: • organising work • completing tasks according to instructions • working systematically with attention to detail • identifying improvements and avoiding damage

	• using workplace practices • using OH&S practices • recording and reporting accidents and incidents • assessing operational readiness of equipment • recognising and adapting to cultural differences in the workplace, including modes of behaviour and interactions
Resource implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OH&S practices.
Context for assessment	Assessment may occur on the job or in an appropriately simulated environment.
Interdependent assessment	This unit may be assessed independently or in combination with other relevant units.
Underpinning knowledge	Demonstrates knowledge of: • knowledge of mechanical processes used within an enterprise for technical textile finishing operations • quality standards and technical textile handling procedures • OH&S practices, including hazard identification and control measures • quality practices • workplace practices • recording and reporting practices
Underpinning skills	Demonstrates skills to: • safe set-up and operation of technical textile mechanical finishing machines • read, interpret and follow information on work specifications, standard operating procedures and work instructions, and other reference material • maintain accurate records • communicate within the workplace • sequence operations • meet specifications • clarify and check task-related information • carry out work according to OH&S practices

KEY COMPETENCIES

The seven Key Competencies represent generic skills considered necessary for effective participation by an individual in the workplace. They focus on the application of knowledge and skills in an integrated way in workplace situations. There are three levels of performance defined within the Key Competencies. These are stand-alone levels and do not correspond to the AQF qualification levels.

Performance levels of Key Competencies

1 – Perform tasks effectively
2 – Manage tasks
3 – Use concepts for evaluating and reshaping tasks

Key Competency	Example	Level
Communicate ideas and information	Task procedures are discussed with supervisor.	1
Collect, analyse and organise information	Technical textile production is checked for compliance with workplace standards.	2

Plan and organise activities	Work area and machines are prepared for activity.	2
Work with others and in teams	Activities are conducted in cooperation with others.	1
Use mathematical ideas and techniques	Work positioning requirements are determined.	1
Solve problems	Faults are reported.	1
Use technology	Technical textile mechanical finishing equipment is used effectively and safely.	2

LMTTN2008A Conduct heat setting on technical textiles

Unit descriptor

This unit covers the skills and knowledge to conduct heat setting processes on technical textiles.

Prerequisites

Nil

Application

The unit applies to heat-setting operations on technical textiles.

Heat setting is mainly conducted on synthetic technical textiles especially nylon and polyester. Machines covered by this unit include stenters, drying, curing and heating ovens, steamers, humidifiers, and similar machines, including associated conveyors.

Work may be conducted in small to large scale enterprises and may involve individual and team activities.

The application of this unit is according to OH&S practices of the enterprise and workplace practices, which may include:

- requirements prescribed by legislation, awards, agreements and conditions of employment
- standard operating procedures
- work instructions
- oral, written and visual communication
- quality practices, including responsibility for maintenance of own work quality and contribution to quality improvement of team or section output
- housekeeping
- tasks related to environmental protection, waste disposal, pollution control, and recycling

Sector

Technical Textiles and Nonwovens

ELEMENTS	PERFORMANCE CRITERIA
1 Prepare for heat setting process	1.1 Appropriate checks are made to ensure that textile fabric or web is ready for heat setting process.
	1.2 Work area is prepared according to ***OH&S practices***.
	1.3 Heat setting machine is prepared and adjusted according to specifications required for work.
	1.4 Problems are reported and recorded.
2 Prepare ***technical textile*** for heat setting	2.1 Appropriate pre-heat-setting tests are conducted on technical textile if required.
	2.2 Technical textile is fixed into position on heat setting machine or conveyor.
	2.3 Job or batch requirements are checked.
3 Operate and monitor heat setting machine	3.1 Temperature is set to achieve quick and even heat over width of technical textile.
	3.2 Duration of heating process is set according to job requirements.
	3.3 Other controls such as conveyor speed, moisture and fans are set according to job and process requirements.
	3.4 Technical textile and machine are monitored during heat setting process to ensure safe and efficient operation.

3.5 Technical textile is removed from heat setting machine and dimensional and other tests carried out as required.

3.6 Technical textile is directed to next operation.

RANGE STATEMENT

The Range Statement relates to the unit as a whole. It allows for different work environments and situations that may affect performance. It describes contextual variables that may be used or encountered when applying the competency in work situations. It allows for different work practices and work and knowledge requirements as well as for differences between organisations and workplaces. The bold italic terms in the Elements and Performance Criteria are explained in this Range Statement. All work must comply with relevant Federal and State or Territory legislative or regulatory requirements.

Heat setting process	Heat setting process is a process designed to give a technical textile dimensional stability or other permanent characteristic through heat induced molecular change.
OH&S practices	OH&S practices include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the tasks described by this unit, and may relate to: • manual handling techniques • standard operating procedures • personal protective equipment • safe materials handling • taking of rest breaks • ergonomic arrangement of workplaces • following marked walkways • safe storage of equipment • housekeeping • reporting accidents and incidents • environmental practices
Technical textile	Technical textiles are textile products that have been manufactured for special technical performance and applications. A clothing, carpet or furnishing textile product is generally not regarded as a technical textile unless a specific technical feature beyond what is normally found in clothing, carpet or furnishing has been added. An example would be special fire retardant clothing.

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Elements and Performance Criteria, Range Statement, Key Competencies and Assessment Guidelines for this Training Package.

Critical aspects of evidence	Demonstrates skills and knowledge to: • safely set and operate technical textile heat setting machines • identify machine or process faults • follow job specifications and orders
Consistency in performance	Consistently applies skills and knowledge when: • organising work • completing tasks according to instructions • working systematically with attention to detail • identifying improvements and avoiding damage • using workplace practices • using OH&S practices

	• recording and reporting accidents and incidents • assessing operational readiness of equipment • recognising and adapting to cultural differences in the workplace, including modes of behaviour and interactions
Resource implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OH&S practices.
Context for assessment	Assessment may occur on the job or in an appropriately simulated environment.
Interdependent assessment	This unit may be assessed independently or in combination with other relevant units.
Underpinning knowledge	Demonstrates knowledge of: • heat setting principles, including potential for variation in outcomes caused by temperature, moisture and fibre or yarn stress. • OH&S practices, including hazard identification and control measures • quality practices • workplace practices • recording and reporting practices
Underpinning skills	Demonstrates skills to: • read temperature and other gauges • consistently achieve quality and production output requirements • read, interpret and follow information on work specifications, standard operating procedures and work instructions, and other reference material • maintain accurate records • communicate within the workplace • sequence operations • meet specifications • clarify and check task-related information • carry out work according to OH&S practices

KEY COMPETENCIES

The seven Key Competencies represent generic skills considered necessary for effective participation by an individual in the workplace. They focus on the application of knowledge and skills in an integrated way in workplace situations. There are three levels of performance defined within the Key Competencies. These are stand-alone levels and do not correspond to the AQF qualification levels.

Performance levels of Key Competencies

1 – Perform tasks effectively
2 – Manage tasks
3 – Use concepts for evaluating and reshaping tasks

Key Competency	Example	Level
Communicate ideas and information	Task procedures are discussed with supervisor.	1
Collect, analyse and organise information	Temperature of technical textile during heat setting process is checked for compliance with job requirements.	2
Plan and organise activities	Work area and machines are prepared for activity.	2
Work with others and in teams	Activities are conducted in cooperation with others.	1

Use mathematical ideas and techniques	Work positioning requirements are determined.	1
Solve problems	Faults are reported.	1
Use technology	Heat setting equipment is used effectively and safely.	2

LMTTN2009A Apply surface coating to technical textiles

Unit descriptor

This unit covers the skills and knowledge to apply surface coating to technical textiles.

Prerequisites

Nil

Application

The unit covers the skills involved in applying surface coating to technical textiles. Surface coating techniques covered by this unit include lick roll, knife coating, gravure, rotary screen, hot melt and transfer coating.

Work may be conducted in small to large scale enterprises and may involve individual and team activities.

The application of this unit is according to OH&S practices of the enterprise and workplace practices, which may include:

- requirements prescribed by legislation, awards, agreements and conditions of employment
- standard operating procedures
- work instructions
- oral, written and visual communication
- quality practices, including responsibility for maintenance of own work quality and contribution to quality improvement of team or section output
- housekeeping
- tasks related to environmental protection, waste disposal, pollution control, and recycling

Sector

Technical Textiles and Nonwovens

ELEMENTS	PERFORMANCE CRITERIA
1 Prepare for surface coating process	1.1 Appropriate checks are made to ensure that textile fabric is ready for surface coating process.
	1.2 Work area is prepared according to ***OH&S practices***.
	1.3 Surface coating is obtained or prepared according to manufacturer instructions and specifications required for job.
	1.4 Problems are reported and recorded.
2 Prepare ***technical textile*** for surface coating	2.1 Appropriate tests are conducted if required on technical textile before application of surface coating.
	2.2 Technical textile is fixed into position on machine or conveyor as required.
	2.3 Job or batch requirements are checked.
3 Operate and monitor surface coating machine	3.1 Where applicable coating mix or transfer sheet is loaded into machine reservoir for pick-up by knife, coating roller, gravure roller, rotary screen, laminating or tie coat machine.
	3.2 Machine is set to correct heat, speed and thickness according to process and job requirements.
	3.3 Coating process is undertaken and monitored to ensure application is according to job requirements and manufacturer instructions.
	3.4 Coated technical textile is removed from coating machine and tests conducted if required.
	3.5 Coated technical textile is directed to next operation.

RANGE STATEMENT

The Range Statement relates to the unit as a whole. It allows for different work environments and situations that may affect performance. It describes contextual variables that may be used or encountered when applying the competency in work situations. It allows for different work practices and work and knowledge requirements as well as for differences between organisations and workplaces. The bold italic terms in the Elements and Performance Criteria are explained in this Range Statement. All work must comply with relevant Federal and State or Territory legislative or regulatory requirements.

Surface coating process	• Surface coating process includes the following coating methods:
	  • lick roll
	  • knife coating
	  • gravure
	  • rotary screen
	  • hot melt
	  • transfer coating

OH&S practices	OH&S practices include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the tasks described by this unit, and may relate to:
	  • manual handling techniques
	  • standard operating procedures
	  • personal protective equipment
	  • safe materials handling
	  • taking of rest breaks
	  • ergonomic arrangement of workplaces
	  • following marked walkways
	  • safe storage of equipment
	  • housekeeping
	  • reporting accidents and incidents
	  • environmental practices

Technical textile	Technical textiles are textile products that have been manufactured for special technical performance and applications. A clothing, carpet or furnishing textile product is generally not regarded as a technical textile unless a specific technical feature beyond what is normally found in clothing, carpet or furnishing has been added. An example would be special fire retardant clothing.

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Elements and Performance Criteria, Range Statement, Key Competencies and Assessment Guidelines for this Training Package.

Critical aspects of evidence	Demonstrates skills and knowledge to:
	  • safely and accurately mix and load surface coating mixtures
	  • safely set and operate technical textile surface coating machines
	  • identify machine or process faults
	  • follow job specifications and orders

Consistency in performance	Consistently applies skills and knowledge when:
	  • organising work
	  • completing tasks according to instructions
	  • working systematically with attention to detail
	  • identifying improvements and avoiding damage

	• using workplace practices • using OH&S practices • recording and reporting accidents and incidents • assessing operational readiness of equipment • recognising and adapting to cultural differences in the workplace, including modes of behaviour and interactions
Resource implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OH&S practices.
Context for assessment	Assessment may occur on the job or in an appropriately simulated environment.
Interdependent assessment	This unit may be assessed independently or in combination with other relevant units.
Underpinning knowledge	Demonstrates knowledge of: • OH&S practices, including hazard identification and control measures • quality practices • workplace practices • recording and reporting practices
Underpinning skills	Demonstrates skills to: • read, interpret and follow information on work specifications, standard operating procedures and work instructions, and other reference material • maintain accurate records • communicate within the workplace • sequence operations • meet specifications • clarify and check task-related information • carry out work according to OH&S practices

KEY COMPETENCIES

The seven Key Competencies represent generic skills considered necessary for effective participation by an individual in the workplace. They focus on the application of knowledge and skills in an integrated way in workplace situations. There are three levels of performance defined within the Key Competencies. These are stand-alone levels and do not correspond to the AQF qualification levels.

Performance levels of Key Competencies

1 – Perform tasks effectively
2 – Manage tasks
3 – Use concepts for evaluating and reshaping tasks

Key Competency	Example	Level
Communicate ideas and information	Task procedures are discussed with supervisor.	1
Collect, analyse and organise information	Technical textile surface coating process is checked for compliance with job requirements and OH&S standards.	2
Plan and organise activities	Work area and machines are prepared for activity.	2
Work with others and in teams	Activities are conducted in cooperation with others.	1
Use mathematical	Work positioning requirements are determined.	1

ideas and techniques		
Solve problems	Faults are reported.	1
Use technology	Surface coating equipment is used effectively and safely.	2

LMTTN2010A Apply laminations and fusible interlinings to technical textiles

Unit descriptor

This unit covers the skills and knowledge to apply laminations and fusible interlinings to technical textiles.

Prerequisites

Nil

Application

The unit covers the skills involved in applying laminations and fusible interlinings to technical textiles. These techniques allow for the bonding of two textile fabrics to give increased stiffening or other enhanced technical performance in the final product. The unit covers the use of solvent, powder or hot melt adhesives to achieve lamination or apply interlining.

Work may be conducted in small to large scale enterprises and may involve individual and team activities.

The application of this unit is according to OH&S practices of the enterprise and workplace practices, which may include:

- requirements prescribed by legislation, awards, agreements and conditions of employment
- standard operating procedures
- work instructions
- oral, written and visual communication
- quality practices, including responsibility for maintenance of own work quality and contribution to quality improvement of team or section output
- housekeeping
- tasks related to environmental protection, waste disposal, pollution control, and recycling

Sector

Technical Textiles and Nonwovens

ELEMENTS	PERFORMANCE CRITERIA
1 Prepare technical textile for ***laminating*** or application of ***fusible interlining***.	1.1 Appropriate checks are made to ensure that textile fabrics are ready for laminating or application of fusible interlining. 1.2 Work area is prepared according to ***OH&S practices***. 1.3 Solvent, powder or hot melt adhesive is obtained or prepared according to manufacturer instructions and specifications required for job. 1.4 Problems are reported and recorded.
2 Prepare ***technical textile*** for lamination or insertion of interlining	2.1 Appropriate tests are conducted if required on technical textile before lamination or fusing of interlining. 2.2 Technical textile is fixed into position on machine or conveyor as required. 2.3 Job or batch requirements are checked according to enterprise procedures.
3 Operate and monitor laminating or fusible interlining machine	3.1 Where required coating material is preformed into a continuous sheet for laminating to substrate either by application of heat or by use of an adhesive. 3.2 Solvent, powder, hot melt adhesive or continuous lamination sheet is applied to technical textile or fusible interlining. 3.3 Coating process is monitored to ensure application is according to job requirements and manufacturer instructions.

3.4 ***Machine variables*** are set according to process and job requirements.

3.5 Laminated or interlined technical textile is removed from coating machine and tests conducted if required.

3.6 Technical textile is directed to next operation.

RANGE STATEMENT

The Range Statement relates to the unit as a whole. It allows for different work environments and situations that may affect performance. It describes contextual variables that may be used or encountered when applying the competency in work situations. It allows for different work practices and work and knowledge requirements as well as for differences between organisations and workplaces. The bold italic terms in the Elements and Performance Criteria are explained in this Range Statement. All work must comply with relevant Federal and State or Territory legislative or regulatory requirements.

Laminating process	The laminating process involves the production of a textile by combining two or more fabrics using an adhesive. Adhesives include solvent, powder or hot melt adhesives.
Fusible interlining	A fusible interlining is a fabric that has been coated with an adhesive coating, which under the influence of heat and pressure will melt and form a bond with any other fabric that is pressed against it
OH&S practices	OH&S practices include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the tasks described by this unit, and may relate to: • manual handling techniques • standard operating procedures • personal protective equipment • safe materials handling • taking of rest breaks • ergonomic arrangement of workplaces • following marked walkways • safe storage of equipment • housekeeping • reporting accidents and incidents • environmental practices
Technical textile	Technical textiles are textile products that have been manufactured for special technical performance and applications. A clothing, carpet or furnishing textile product is generally not regarded as a technical textile unless a specific technical feature beyond what is normally found in clothing, carpet or furnishing has been added. An example would be special fire retardant clothing.
Machine variables may include	• setting of height adjustments • setting of temperature and timer controls for heating and cooling elements • setting of roller controls after heating zone for linear pressure. • level adjustments of calibrating rollers for precise calibration • conveyor belt controls for speed, direction, etc.

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Elements and Performance Criteria, Range Statement, Key Competencies and Assessment Guidelines for this Training Package.

Critical aspects of evidence	Demonstrates skills and knowledge to:

	• safely and accurately load adhesives • safely set and operate technical textile laminating and interlining machines • identify machine or process faults • follow job specifications and orders
Consistency in performance	Consistently applies skills and knowledge when: • organising work • completing tasks according to instructions • working systematically with attention to detail • identifying improvements and avoiding damage • using workplace practices • using OH&S practices • recording and reporting accidents and incidents • assessing operational readiness of equipment • recognising and adapting to cultural differences in the workplace, including modes of behaviour and interactions
Resource implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OH&S practices.
Context for assessment	Assessment may occur on the job or in an appropriately simulated environment.
Interdependent assessment	This unit may be assessed independently or in combination with other relevant units.
Underpinning knowledge	Demonstrates knowledge of: • laminating and interlining processes • OH&S practices, including hazard identification and control measures • quality practices • workplace practices • recording and reporting practices
Underpinning skills	Demonstrates skills to: • consistently achieve quality and production output requirements • read, interpret and follow information on work specifications, standard operating procedures and work instructions, and other reference material • maintain accurate records • communicate within the workplace • sequence operations • meet specifications • clarify and check task-related information • carry out work according to OH&S practices

KEY COMPETENCIES

The seven Key Competencies represent generic skills considered necessary for effective participation by an individual in the workplace. They focus on the application of knowledge and skills in an integrated way in workplace situations. There are three levels of performance defined within the Key Competencies. These are stand-alone levels and do not correspond to the AQF qualification levels.

Performance levels of Key Competencies

1 – Perform tasks effectively

2 – Manage tasks
3 – Use concepts for evaluating and reshaping tasks

Key Competency	Example	Level
Communicate ideas and information	Task procedures are discussed with supervisor.	1
Collect, analyse and organise information	Laminating process is checked for compliance with job requirements and OH&S standards.	2
Plan and organise activities	Work area and machines are prepared for activity.	2
Work with others and in teams	Activities are conducted in cooperation with others.	1
Use mathematical ideas and techniques	Work positioning requirements are determined.	1
Solve problems	Faults are reported.	1
Use technology	Equipment is used effectively and safely.	2

LMTTN2011A Undertake fibre blending and feeding for nonwoven technical production processes

Unit descriptor

This unit covers the skills and knowledge to undertake fibre blending and feeding for nonwoven technical production processes.

Prerequisites

LMTTX3005A Organise and interpret tests

Application

The unit applies to the preparation and blending of fibres for feeding into a carding machine. Fibres may be natural or synthetic and are used in a nonwoven textile production process.

Work is conducted according to defined procedures.

Work may be conducted in small to large scale enterprises and may involve individual and team activities.

The application of this unit is according to OH&S practices of the enterprise and workplace practices, which may include:

- requirements prescribed by legislation, awards, agreements and conditions of employment
- standard operating procedures
- work instructions
- oral, written and visual communication
- quality practices, including responsibility for maintenance of own work quality and contribution to quality improvement of team or section output
- housekeeping
- tasks related to environmental protection, waste disposal, pollution control, and recycling

Sector

Technical Textiles and Nonwovens

ELEMENTS	PERFORMANCE CRITERIA
1 Check and identify raw fibres	1.1 Production specifications are checked to identify ***fibres*** required for carding operation.
	1.2 Raw fibres are identified for compliance to ***fibre production specification***.
	1.3 Tests are carried out as necessary to determine compliance with production requirements.
	1.4 Non-conforming or defective fibre batches are reported.
2 Blend fibres	2.1 Fibres are selected and blended according to production specification.
	2.2 Additives are loaded where required.
	2.3 Fibres are correctly loaded into carding machine.
	2.4 Blending is conducted according to ***OH&S practices***.
	2.5 Blending is monitored to ensure blending consistency and feed uniformity.
	2.6 ***Waste*** is sorted.
3 Complete records	3.1 Production records or other documentation are accurately completed.

RANGE STATEMENT

The Range Statement relates to the unit as a whole. It allows for different work environments and situations that may affect performance. It describes contextual variables that may be used or encountered when applying the competency in work situations. It allows for different work practices and work and knowledge requirements as well as for differences between organisations and workplaces. The bold italic terms in the Elements and Performance Criteria are explained in this Range Statement. All work must comply with relevant Federal and State or Territory legislative or regulatory requirements.

Fibres include	• natural and synthetic fibres

Fibre production specification may include	• fibre types, including:
	  • rayon
	  • nylon
	  • polyester
	  • polypropylene
	  • cotton
	  • wool
	  • cellulose
	  • glass
	• fibre characteristics, including:
	  • absorbency
	  • abrasion resistance
	  • modulus
	  • web ‘handle’
	  • moisture absorption
	  • chemical and temperature resistance
	  • size (diameter)
	  • fineness (decitex or denier)
	  • fibre crimp

OH&S practices	OH&S practices include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the tasks described by this unit, and may relate to:
	  • manual handling techniques
	  • standard operating procedures
	  • personal protective equipment
	  • safe materials handling
	  • taking of rest breaks
	  • ergonomic arrangement of workplaces
	  • following marked walkways
	  • safe storage of equipment
	  • housekeeping
	  • reporting accidents and incidents
	  • environmental practices

Waste may include	• processed burr • contaminants • processed sweepings • non-conforming fibre materials • machine waste, e.g. grease, oil

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Elements and Performance Criteria, Range Statement, Key Competencies and Assessment Guidelines for this Training Package.

Critical aspects of evidence	Demonstrates skills and knowledge to: • check machine settings to meet production requirements • monitor and operate carding machine involving defined procedures and methods • make minor adjustments • check product samples against quality standards • load and unload products according production requirements • complete records accurately and completely • apply OH&S practices in work operations
Consistency in performance	Consistently applies skills and knowledge when: • organising work • completing tasks according to instructions • working systematically with attention to detail • identifying improvements and avoiding damage • using workplace practices • using OH&S practices • recording and reporting accidents and incidents • assessing operational readiness of equipment • recognising and adapting to cultural differences in the workplace, including modes of behaviour and interactions
Resource implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OH&S practices.
Context for assessment	Assessment may occur on the job or in an appropriately simulated environment.
Interdependent assessment	This unit may be assessed independently or in combination with other relevant units.
Underpinning knowledge	Demonstrates knowledge of: • fibre types and basic characteristics • blending and feeding processes • technical specifications, manuals and operating instructions • quality standards and procedures • OH&S practices, including hazard identification and control measures • quality practices • workplace practices • recording and reporting practices
Underpinning skills	Demonstrates skills to: • check machine safety equipment and report any faults • prepare fibre for carding • load and unload materials according to machine and workplace practices • start and stop machines according to specifications • monitor machine operations, including machine production readings

- recognise, rectify and report machine faults or problems as required
- clean machines as required
- check machine maintenance records
- recognise fault conditions
- check and confirm compliance to operational specifications
- read, interpret and follow information on work specifications, standard operating procedures and work instructions, and other reference material
- maintain accurate records
- communicate within the workplace
- sequence operations
- meet specifications
- clarify and check task-related information
- carry out work according to OH&S practices

KEY COMPETENCIES

The seven Key Competencies represent generic skills considered necessary for effective participation by an individual in the workplace. They focus on the application of knowledge and skills in an integrated way in workplace situations. There are three levels of performance defined within the Key Competencies. These are stand-alone levels and do not correspond to the AQF qualification levels.

Performance levels of Key Competencies

1 – Perform tasks effectively
2 – Manage tasks
3 – Use concepts for evaluating and reshaping tasks

Key Competency	Example	Level
Communicate ideas and information	Problems with a machine are discussed with supervisor.	2
Collect, analyse and organise information	Production outcomes for a machine are collected and recorded against specified categories.	2
Plan and organise activities	Fibre is prepared for carding operations.	1
Work with others and in teams	Own work is coordinated with employees on other workstations on a production line.	2
Use mathematical ideas and techniques	Raw materials are weighed.	1
Solve problems	Problems with materials are referred to supervisor.	2
Use technology	Production details are monitored using workstation LCD visual representation of process.	2