PRODUCE NONWOVEN FABRIC

UNIT CODE: ENG/OS/TEX/CR/05/6/A

Unit description

This unit describes the competencies required by a textile technician to produce nonwoven fabric. It involves competencies required to produce laid fiber webs, produce bonded nonwoven fabrics, control production and quality parameters and producing finished nonwoven fabrics.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These are assessable statements which specify the required level of performance for each of the elements	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements ***(Bold and italicized terms are elaborated in the Range)***
1. Produce laid fiber webs	1.1 Safety precautions are observed according to occupational health and safety standards (OSHA) 1.2 Blending order instructions are obtained and interpreted 1.3 ***Nonwoven textile raw materials*** are obtained according to design specifications 1.4 Nonwoven textile raw materials are opened and cleaned according to product specifications 1.5 Fibre bales are blended according to blending order instruction 1.6 Fibre laying machines are operated according to work instruction 1.7 laying machines are monitored for smooth process flow according to applicable ***laying method*** 1.8 Process defects are identified and corrected where possible according to SOP 1.9 Laid web is transferred to the next process according to product specification 1.10 Produced waste is collected according to workplace procedures 1.11 Laying records are documented according to organisational standards
2. Produce bonded nonwoven fabrics	2.1 Safety precautions are observed according to occupational health and safety standards (OSHA)

	2.2 ***Nonwoven method of fabric formation*** is identified according to product design 2.3 Laid webs of fibres are obtained according to design specifications. 2.4 Bonding machines are set according to ***bonding method*** 2.5 Laid web is received onto the bonding machine according to operational instructions. 2.6 bonding Machine is operated according to operational procedures 2.7 bonding process is monitored according to workplace procedures 2.8 ***Bonding process defects*** are identified and rectified according to SOP 2.9 Nonwoven fabric are handled and stored under appropriate conditions according to organization procedures. 2.10 Bonding waste is disposed off according to organizational procedures. 2.11 Bonding operations are documented according to organizational procedures.
3. Control production and quality parameters	3.1 Safety precautions are observed according to occupational health and safety standards (OSHA) 3.2 Resources requirements are allocated according to work load 3.3 ***Product in process*** is inspected according to quality requirement 3.4 Production output is controlled according to the plan 3.5 Efficient production requirements are identified according to work plan 3.6 Process non-conformance is identified and documented according to workplace requirements 3.7 Activities in the production flow are coordinated for continuous and efficient flow of materials.
4. Produce finished nonwoven fabrics	4.1 Safety precautions are observed according to occupational health and safety standards (OSHA) 4.2 ***Finishing methods*** are identified according to the product design 4.3 Non-woven fabric finishing machines are identified according to process layout

	4.4 Machine status is checked and required routine maintenance is undertaken according to manufacturer's manual. 4.5 ***Finishing Quality parameters*** are inspected and controlled according to quality requirements 4.6 Finishing process is controlled according to production requirements 4.7 Non-woven finishing process records are maintained according to organizational procedures.

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Nonwoven textile raw materials may include but is not limited to:	• Fibres • Dyes pigments • Resins and binders
2. Laying method may include but is not limited to:	• Wet-laid • Dry-laid • Extruded • Air
3. Nonwoven method of fabric formation may include but is not limited to:	• Chemical/ adhesive • Mechanical • Thermal
4. Bonding method may include but is not limited to:	• Needle punching • Chemical adhesive binding • Heat application

Variable	Range
5. Quality parameters may include but is not limited to:	• Density • Tensile strength • Bursting strength • Abrasion • Colour fastness • Flame resistance
6. Finishing methods may include but is not limited to:	• Shrinkage • Calendaring • Perforation and slitting • Washing • Dyeing • Printing • Chemical finishing • Coating • Lamination • Flocking

REQUIRED SKILLS

The individual needs to demonstrate skills in:

- Communication skills
- Problem solving
- Creativity and innovation
- Data collection and analysis
- Use of tools and equipment
- Technical presentation
- Web preparation skills
- Fibre preparation skills
- Carding skills
- Web laying skills
- Finishing of nonwoven fabric
- Fibre bonding skills
- Drying and curing skills
- Machine operation skills
- Machine maintenance skills
- Testing and evaluation of nonwoven fabric

REQUIRED KNOWLEDGE

The individual needs to demonstrate knowledge of:

- Type of textile fibres
- Laying methods
- Importance of web formation
- Methods of bonding
- Uses of nonwoven fabric
- Properties and performance of nonwoven fabrics
- Texting of nonwoven fabric
- Methods of curing of nonwoven
- Finishing methods of nonwovens
- Working of binders
- Fibre preparation
- Carding principles
- laying methods

EVIDENCE GUIDE

This provides advice on assessment and must be in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical Aspects of Competency.	Assessment requires evidence that the learner 1.1 Carried out nonwoven textile material preparation 1.2 Produced nonwoven products 1.3 Controlled production and quality parameters 1.4 Operated nonwoven machines
2. Resource Implications.	The following resources should be provided: 2.1 Testing equipment 2.2 Textile fibres 2.3 Nonwoven bonding machines 2.4 Resins and chemicals
3. Methods of Assessment.	***Competency may be assessed through:*** 3.1 Practical 3.2 Observation 3.3 Questionnaire 3.4 Written examinations 3.5 Oral presentation
4. Context of Assessment.	Competency may be assessed: 4.1 On-the-job

	4.2 Off-the –job 4.3 During Industrial attachment
5. Guidance information for assessment.	This unit may be assessed on an integrated basis with others within this occupational sector.