



Australian Government

Department of Education, Employment and Workplace Relations

LMTTX4004A Select dyes and develop dye specification and recipe for production

Revision Number: 1

LMTTX4004A Select dyes and develop dye specification and recipe for production

Modification History

Not applicable.

Unit Descriptor

Unit descriptor This unit covers the skills and knowledge associated with selecting, developing and testing dyes, chemical and auxiliaries and developing a dye specification and recipe for the production of textiles.

Application of the Unit

Application of the Unit

This unit applies to selecting and testing dyes and developing dye formula and specifications used in the dyeing of textiles. Judgement may be required in planning and selecting appropriate processes or procedures for self and others. Textile material and products for which product specifications are developed in the textile sector include fibres, fabrics, yarns and finished products.

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 OHS 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

This unit requires the application of skills associated with communication to interpret specifications, perform calculations, apply formulas and complete documentation. Planning and organising and problem solving skills are required to determine and test dye specifications and recipes.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisites

Employability Skills Information

Employability Skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Identify properties of textile	1.1 Specifications and or sample of textile material product is confirmed with originator and client 1.2 End use and performance standards expected of finished product are clarified and determined with appropriate personnel 1.3 Sample is analysed to determine type and composition using appropriate techniques, if required
2 Perform preliminary selection and evaluation of dyes	2.1 Preliminary selection of dyes and chemicals and auxiliaries is undertaken with reference to specifications and or previous product dyeing references 2.2 Expected textile production and reproduction processes are identified based on preliminary dye selection and appropriate personnel advised 2.3 Preliminary dye selection is determined for the sample of textile 2.4 Dye selections and specification and recipe are trailed using laboratory-based production facilities and results evaluated against requirements of originator and client, as required 2.5 Dye selection and recipe is reviewed, and re-developed and re-tested as required 2.6 Approval of preliminary dye specification by originator and client is sought prior to implementing limited production run
3 Perform final selection and evaluation of dyes and specification and recipe	3.1 Sampling and testing techniques are selected appropriate to evaluation of product during limited production run 3.2 Tests are implemented using established enterprise procedures and quality standards 3.3 Results are analysed and preliminary dye selection and recipe reviewed, modified and re-tested as required 3.4 Dye selection checked against original client specifications and requirements and enterprise production process and requirements 3.5 Approval of colour specification by originator and client is sought prior to implementing bulk production run 3.6 Environmental requirements and procedures concerned with waste, pollution, storage and recycling of materials are correctly applied at all stages of the process
4 Prepare final dye specification and recipe	4.1 Samples from bulk production run are tested using appropriate techniques 4.2 Results are analysed and dye recipe reviewed, modified and re-tested as required 4.3 Dye specification and recipe is developed, checked and filed in accordance with workplace requirements and industry and quality standards 4.4 Reports and documentation are prepared 4.5 Dye specification and recipe is monitored to ensure continuity and repeatability of colour and test results

Required Skills and Knowledge

This describes the essential skills and knowledge and their level, required for this unit.

Demonstrates knowledge of:

- fibres, yarns and end products and their properties
- dye stuffs and classes
- chemistry of dyes and relevance to processing and fastness properties
- dyeing processes and dyeing machinery
- relation between dye machinery and selection of dye stuffs and classes
- tests applicable to the dyeing of textiles
- Australian and international testing standards
- application of dyes in laboratory and production process
- safety and environmental aspects of relevant workplace activities including handling of chemicals and dangerous substances
- OHS practices, including hazard identification and control measures
- quality practices
- workplace practices
- recording and reporting practices

Demonstrates skills to:

- effective use of test equipment
- analysis and interpretation of results
- colour matching
- safe handling and disposal of dyes, chemicals and effluent
- communicate effectively with individuals, work groups and supervisors
- select, interpret and apply procedures or processes
- prepare and present reports and information in appropriate formats
- 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 OHS practices

Evidence Guide

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Critical aspects of evidence to be considered

Demonstrates skills and knowledge to:

- identify textile characteristics
- establish and confirm criteria for tests
- set up and calibrate test equipment
- develop and plan tests
- ensure tests are conducted against specified quality standards
- collate, analyse and interpret tests
- develop dye formula and specifications
- communicate effectively with design team, customers, etc.
- maintain accurate records

Consistency in performance

Consistently applies skills and knowledge when:

- organising work
- completing tasks
- identifying improvements
- using workplace practices
- using OHS practices
- recording and reporting accidents and incidents
- assessing operational readiness of equipment used and work processes
- recognising and adapting to cultural differences in the workplace, including modes of behaviour and interactions
- completing work systematically with attention to detail without damage to goods and equipment

Resource implications

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

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the Performance Criteria, is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.

Legislative/regulatory requirements	All work must comply with relevant Federal and State or Territory legislative or regulatory requirements.
Yarns may include	• spun • open-ended spun • air jet spun • friction spun
Fibres may include	• polyester • cotton • wool • viscose rayon
Finished products may include	• socks • sweaters • towels • sheets • blankets • carpets • rope and twine • mops and industrial textiles
Tests may include	• those associated with product or process development, and may include: • colour fastness testing • shrinkage testing
Test equipment may include	• laboratory equipment • pad mangles • rota dryers • mini jets • pilot production plants
Dye specification and recipe may include	• dye formulas • application properties • fastness properties, reproducibility • suitability for production and application methods • environmental and safety factors
OHS practices	OHS practices must include hazard identification and control, risk

assessment and implementation of risk reduction measures specific to the tasks described by this unit, and may include:

- 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
- other OHS practices relevant to the job and enterprise

Unit Sector(s)

Sector	Textile Production
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