



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **FDFST4034A Implement and review the processing of chocolate**

**Release: 2**

## **FDFFST4034A Implement and review the processing of chocolate**

### **Modification History**

April 2012: Minor typographical corrections.

### **Unit Descriptor**

<b>Unit descriptor</b>	This unit covers the skills and knowledge required to implement and review the standards and procedures for manufacture of chocolate, including product testing and sensory analysis
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### **Application of the Unit**

<b>Application of the unit</b>	<p>This unit applies to food science and technology personnel who have roles in product design, quality assurance and production management. The unit typically applies to staff who have responsibility for maintaining product safety, quality and efficiency in food production in the confectionery sector.</p> <p>This unit includes using knowledge of food science and processes to determine the required food safety, quality and performance required from food production equipment. Depending on the workplace application, liaison may be required with engineering and maintenance specialists.</p>
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### **Licensing/Regulatory Information**

Not applicable.

### **Pre-Requisites**

Not applicable.

## Employability Skills Information

<b>Employability skills</b>	This unit contains employability skills.
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## Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

## Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for the manufacturing of chocolate	1.1 The required formulation of chocolate is selected 1.2 The appropriate production system and the preferred sequence of activity to prepare the system for operation is selected 1.3 Equipment is prepared and safe operating procedures accessed for its operation
2. Carry out preparation and manufacture of chocolate	2.1 A production schedule is implemented to ensure all resources and requirements are available and meet company requirements 2.2 Production system is set to operating specifications before and during production 2.3 Data requirements appropriate for food safety, quality and production standards are documented 2.4 Data collection points consistent with equipment capabilities and data requirements are identified 2.5 Procedures to deal with non-conformance in relation to process and the final product are developed 2.6 Process control system is implemented and monitored
3. Diagnose, rectify and/or report problem arising from the preparation and manufacture of chocolate	3.1 Sensory evaluation and product testing protocols are established to identify defects and maintain organoleptic quality of chocolate 3.2 Identified adjustments to inputs, process & equipment are carried out as required 3.3 A system to identify defects in the preparation and manufacture of chocolate is implemented 3.4 Adjustments to process and equipment, as identified, are made 3.5 Problems are reported to designated person according to company policies and procedures
4. Review production processes	4.1 The critical control points (CCPs) and critical limits for product safety are reviewed 4.2 A sampling plan is developed and implemented for 4.3 Sensory analysis is conducted and analysed 4.4 Food tests are undertaken and data generated for the product label 4.5 Operating procedures and the process control system are reviewed for food safety and quality 4.6 Safe work systems for processing of chocolate are reviewed 4.7 Environmental impacts and energy efficiencies are reviewed for processing of chocolate

## Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

### Required skills include:

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#### Ability to:

- carry out production processes for the manufacture of chocolate including mixing, refining, conching and storage
- plan the production processes related to chocolate manufacture
- monitor the output of each of the processes used in the preparation and manufacture of chocolate
- monitor process controls for preparation and manufacture of chocolate
- recognise the organoleptic properties of different types of chocolate
- compare chocolate to market specifications for high and low boil confectionery
- operate equipment and accessories for the preparation and manufacture of chocolate.

### Required knowledge includes:

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#### Knowledge of:

- critical factors in the preparation and manufacture of chocolate
- types of chocolate and compound chocolate and the ingredients used to manufacture each type
- crystallisation behaviour of fats, especially cocoa butter
- rheological properties of chocolate and compound chocolate as a liquid and the role of emulsifiers in these
- the role of particle size and particle size distribution on chocolate properties
- preparation and manufacture of chocolate through to packaging, storage and distribution
- the production system for the preparation and manufacture of chocolate including production instruction, quality assurance requirements and or/specifications, production specification and or/standards, production equipment, production procedures, cleaning procedures and materials and raw materials
- resource requirements for the preparation and manufacture of chocolate
- identification of defects during production and of final products
- the statutory compositional requirements for the different types of chocolate
- stages of production, CCPs and critical limits
- packaging procedures
- quality and continuous improvement processes
- sensory analysis techniques
- safe systems of work.

## Evidence Guide

### EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	A person who demonstrates competency in this unit must be able to review the preparation and manufacture of chocolate including product testing and sensory analysis.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Critical aspects of assessment must include evidence of the ability to manufacture chocolate including implementing process control procedures and data collection diagnosing and reporting problems for manufacturing, carrying out sensory evaluation and product testing, and reviewing the chocolate production system for food safety and quality and environmental impact.
Context of and specific resources for assessment	<p>Assessment of performance requirements in this unit should be undertaken within the context of food technology. Competency is demonstrated by performance of all stated criteria, including the critical aspects and knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statements applicable to the workplace environment.</p> <p>Assessment must occur in a real or simulated workplace where the assessee has access to:</p> <ul style="list-style-type: none"> <li>• Production process and related equipment, manufacturers' advice and operating procedures</li> <li>• Methods and related software systems as required for collecting data and calculating yields, efficiencies and material variances appropriate to production environment</li> <li>• Tests used to report relevant product/process information and recorded results</li> </ul>
Method of assessment	<p>The following assessment methods are suggested:</p> <ul style="list-style-type: none"> <li>• Observation of candidate manufacturing samples and conducting a range of tests and procedures</li> </ul>

<b>EVIDENCE GUIDE</b>	
	<ul style="list-style-type: none"> <li>• Written and/or oral questioning to assess knowledge and understanding</li> <li>• Completing workplace documentation</li> <li>• Third party reports from experienced practitioner</li> <li>• Case studies</li> <li>• Field Reports</li> </ul>
Guidance information for assessment	Evidence should be gathered over a period of time in a range of actual or simulated environments.

## Range Statement

<b>RANGE STATEMENT</b>	
<p>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. 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) may also be included.</p>	
<b>Policies and procedures</b>	Work is carried out according to company procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements.
<b>Legislation</b>	Legislative requirements are typically reflected in procedures and specifications. Legislation relevant to this industry includes the Food Standards Code including labelling, weights and measures legislation; and legislation covering food safety, environmental management, occupational health and safety, anti-discrimination and equal opportunity.
<b>OHS requirements</b>	<ul style="list-style-type: none"> <li>• legislation, regulations, Codes of practice</li> <li>• safety data sheets (SDSs)</li> <li>• enterprise and process specific occupational health and safety requirements</li> </ul>
<b>Chocolate</b>	This includes all chocolates and compound chocolates in liquid and solid form for further processing or industrial sales.

**Unit Sector(s)**

<b>Unit sector</b>	Technical
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