



**AUSTRALIAN  
NATIONAL TRAINING  
AUTHORITY**

# **Food Processing Industry**

## **FDF 98**

### **Confectionary Competency Units**

**NATIONAL FOOD INDUSTRY  
TRAINING COUNCIL**

<b>Qualification</b>	<b>Code</b>
Certificate III in Food Processing	FDF30198
Certificate II in Food Processing	FDF20198
Certificate I in Food Processing	FDF10198

© Australian National Training Authority

All rights reserved. This work has been produced initially with the assistance of funding provided by the Commonwealth Government through ANTA. This work is copyright, but permission is given to trainers and teachers to make copies by photocopying or other duplicating processes for use within their own training organisation or in a workplace where the training is being conducted. This permission does not extend to the making of copies for use outside the immediate training environment for which they are made, nor the making of copies for hire or resale to third parties. For permission outside of these guidelines, apply in writing to Australian National Training Authority.

The views expressed in this version of the work do not necessarily represent the views of ANTA.

Australian National Training Authority does not give warranty nor accept any liability in relation to the content of this work.

Published by: Australian Training Products Ltd  
GPO Box 5347BB  
MELBOURNE VIC 3001  
Telephone: +61 3 9630 9836 or 9630 9837  
Facsimile: +61 3 9639 4684

First Published: November 1998

STOCKCODE; 4820001STD

Printed by Document Printing Australia Pty Ltd, MELBOURNE AUSTRALIA

<b>INDEX TO:</b>	<b>Confectionery Units</b>
------------------	----------------------------

<b>UNIT CODE</b>	<b>UNIT TITLE</b>	<b>PAGE NO.</b>
FDF CONDC1 A	Locate industry and company products and processes (Confectionery)	1
FDF ZZIP1 A	Carry out basic ingredient preparation	5
FDF ZZDB2 A	Dispense non-bulk ingredients	9
FDF CONEP2A	Manufacture extruded confectionery products	13
FDF CONSM2 A	Manufacture starch moulded products	17
FDF CONDP2 A	Manufacture deposited products	23
FDF CONBS2 A	Manufacture boiled sugar confectionery	27
FDF CONCC2 A	Manufacture compressed confectionery products	33
FDF CONPC2 A	Manufacture panned confectionery	37
FDF CONMC 2 A	Manufacture chocolate	41
FDF ZZTC2 A	Temper chocolate	45
FDF CONCP2 A	Manufacture moulded chocolate products	49
FDF ZZER2 A	Manufacture enrobed products	55
FDF CONDF3 A	Diagnose and respond to product and process faults	59
FDF CONOS3 A	Operate a system (Confectionery)	63

Locate industry and company products and processes (Confectionery)

<b>FDF CONDC1 A</b>	<b>Locate industry and company products and processes (Confectionery)</b>
---------------------	---

**Descriptor** This unit is a specialist unit that has been customised for the confectionery sector. It covers the products and processes used in the workplace.

**Range of variables**

The range of variables provides further advice to interpret the scope and context of this unit of competence. It assumes:

- Processes and procedures are carried out within company policy and procedures and legislative requirements
- Confectionery processes depend on product type. Chocolate production typically includes chocolate making, tempering and further processing. Sugar based confectionery production typically includes mixing product ingredients, cooking, cooling and further processing. Finished product is cooled, wrapped and packed, ready for despatch
- Stages refer to functions or activities in the production, packaging and despatch processes. Examples of typical stages are chocolate making, mixing, cooking, extruding, aerating, packing, storing and despatching

Element	Performance criteria	Evidence guide – Part A
Identify products and quality requirements	Company product range is identified  Quality requirements of final products are identified in accord with company specifications	Part A of the Evidence guide identifies the knowledge to be demonstrated to confirm competence for this unit. Part B of the Evidence guide outlines how this guide is to be applied. It should be read in conjunction with the Range of variables.  <b>Demonstrated ability to:</b> <ul style="list-style-type: none"> <li>– access workplace information to identify materials and production requirements</li> <li>– identify and locate materials used in the work process</li> <li>– identify and locate production and/or packaging stages and process in the workplace</li> <li>– comply with OHS and food safety requirements when moving around the workplace</li> </ul>
Identify and locate production and packaging processes	Raw materials and related handling systems are located and operated as required  Production and packaging stages and processes are identified  Equipment used for each stage is located	<b>Underpinning knowledge:</b> <ul style="list-style-type: none"> <li>– range of final products produced by the company</li> <li>– quality requirements/specifications for final products</li> <li>– consequences of product failing to meet quality requirements</li> <li>– stages and processes used to manufacture and package product</li> <li>– basic purpose of equipment used at each stage</li> <li>– outputs at each stage of the process</li> <li>– raw materials/consumables used</li> </ul> (cont)

Element	Performance criteria	Evidence guide – Part A
		<p><i>Underpinning knowledge: (continued)</i></p> <ul style="list-style-type: none"> <li>– preparation, packaging, handling and storage of finished product prior to sale</li> <li>– OHS, quality, food safety and environmental requirements relating to own work</li> </ul>

## Evidence guide – Part B

### Assessment guide

- Assessment must take account of the food industry's endorsed assessment guidelines and may use the non-endorsed *Assessment Framework for the Food and Beverage Processing Industry NFITC June 1995*.
- The competencies described in this unit need to be performed over a specified time and events, under normal workplace conditions, having due regard for the key assessment principles of validity, reliability, fairness and flexibility.
- Assessment should be structured on whole of work activities giving emphasis to confirming that the assessee can achieve the workplace outcomes described in the Performance criteria, including demonstration of the underpinning knowledge and skills contained in the Evidence guide.
- The equipment used should be the actual items described in the Range of variables and Assessment context.
- The procedures and documentation should be those typically used in a workplace. Compliance with statutory occupational health and safety, food safety, hygiene and environmental requirements relevant to the food processing industry should be emphasised.
- Assessment should not require a higher level of communication competency than that specified in the core competencies for the particular AQF level.
- Assessment should reinforce the integration of the key competencies and the food industry's core competencies for the particular AQF level.

### Assessment context

Assessment must occur in a real or simulated workplace. Such an environment must provide an opportunity for the assessee to describe confectionery products and processes given:

- work procedures including advice on safe work practices, food safety and environmental requirements
- production systems, stages and processes
- raw materials, in-process and finished product requirements and/or specifications

## Relationship to other units

Co-requisites:

- Communicate in the workplace
- Apply basic mathematical concepts
- Apply safe work procedures
- Apply basic quality assurance practices
- Apply basic food safety practices

## Relationship to learning resources

Main learning resources:

- Introduction to Confectionery Manufacturing

Related learning resources:

- Industrial Communication A

- Calculations A
- Occupational Health & Safety A
- Quality Assurance A
- Food Safety A (Hygiene and Sanitation A)

Locate industry and company products and processes (Confectionery)



**Descriptor** This is a specialist unit that applies to the confectionery, pastry plant baking and biscuit sectors. It covers basic ingredient preparation such as inspecting and weighing materials and operating simple preparation equipment.

**Range of variables**

The range of variables provides further advice to interpret the scope and context of this unit of competence. It assumes:

- Work is carried out in accordance with company procedures, licensing requirements, legislative requirements and industrial awards and agreements
- Workplace information can include Standard Operating Procedures (SOPs), specifications, production schedules and batch/recipe instructions
- Simple preparation equipment typically describes single purpose equipment with minimal adjustment and monitoring required by the operator
- Materials can include bulk and non-bulk
- Basic preparation methods may include inspection, sorting and grading of materials/ingredients, weighing, use of simple equipment to prepare materials such as sieving, shredding, grinding, soaking, roasting and conditioning
- Weighing and measuring includes both manual and automated weighing methods
- Inspection is typically by visual inspection
- Information systems may be print or screen based
- Work may involve exposure to chemicals, dangerous or hazardous substances

Element	Performance criteria	Evidence guide – Part A
Prepare materials for use in production	<p>Materials are confirmed and available to meet production/recipe requirements</p> <p>Materials are prepared to meet production/recipe requirements</p> <p>Materials are identified and labeled as required</p>	<p>Part A of the Evidence guide identifies the knowledge to be demonstrated to confirm competence for this unit. Part B of the Evidence guide outlines how this guide is to be applied. It should be read in conjunction with the Range of variables.</p> <p><b>Demonstrated ability to:</b></p> <ul style="list-style-type: none"> <li>- access workplace information to identify materials specification/quality requirements</li> <li>- confirm availability of materials and services</li> <li>- confirm that materials meet specification. Method used depends on materials and specification requirements and can include:                             <ul style="list-style-type: none"> <li>➤ confirming type of materials</li> <li>➤ visual inspection</li> <li>➤ sorting and grading</li> </ul> </li> <li>- identify out-of-specification results or non-compliance and take appropriate corrective action</li> <li>- prepare materials as required by recipe/specification. This can include:                             <ul style="list-style-type: none"> <li>➤ measuring and weighing</li> <li>➤ simple preparation methods <i>(cont.)</i></li> </ul> </li> </ul>

Element	Performance criteria	Evidence guide – Part A
		<p><i>Demonstrated ability to: (continued)</i></p> <ul style="list-style-type: none"> <li>– label and/or code materials as required</li> <li>– sort, collect, treat, recycle or dispose of waste</li> <li>– maintain work area and equipment to meet housekeeping standards</li> <li>– record workplace information</li> </ul> <p>May include:</p> <ul style="list-style-type: none"> <li>– set up and operate basic equipment</li> <li>– shut down equipment in response to an emergency situation and/or routine shut down requirements</li> <li>– clean equipment according to procedures</li> </ul> <p><b>Underpinning knowledge</b></p> <ul style="list-style-type: none"> <li>– purpose and procedures for preparing ingredients</li> <li>– link to related processes</li> <li>– materials/ingredient specifications</li> <li>– cross contamination risks and consequences. This may include an awareness of common allergens used and related cleaning requirements for batch changeover</li> <li>– materials handling requirements of bulk and non-bulk materials used</li> <li>– basic awareness of quality standards for ingredients used</li> <li>– ingredient identification and codes</li> <li>– storage requirements of materials used</li> <li>– purpose and operating requirements of basic preparation equipment/processes</li> <li>– common causes of contamination</li> <li>– OHS hazards and controls</li> <li>– environmental issues and controls</li> <li>– procedures and responsibility for reporting problems</li> <li>– environmental issues and controls</li> <li>– waste handling requirements and procedures</li> <li>– recording requirements</li> </ul> <p>May include</p> <ul style="list-style-type: none"> <li>– principles and procedures for basic equipment operation</li> <li>– equipment operation, including related OHS</li> <li>– cleaning requirements and procedures</li> </ul>

## Evidence guide – Part B

### Assessment guide

- Assessment must take account of the food industry's endorsed assessment guidelines and may use the non-endorsed *Assessment Framework for the Food and Beverage Processing Industry NFITC June 1995*.
- The competencies described in this unit need to be performed over time and events, under normal workplace conditions, having due regard for the key assessment principles of validity, reliability, fairness and flexibility.
- Assessment should be structured on whole of work activities giving emphasis to confirming that the assessee can achieve the workplace outcomes described in the Performance criteria, including demonstration of the underpinning knowledge and skills contained in the Evidence guide.
- The equipment used should be the actual items described in the Range of variables and Assessment context.
- The procedures and documentation should be those typically used in a workplace. Compliance with statutory occupational health and safety, food safety, hygiene and environmental requirements relevant to the food processing industry should be emphasised.
- Assessment should not require a higher level of communication competency than that specified in the core competencies for the particular AQF level.
- Assessment should reinforce the integration of the key competencies and the food industry's core competencies for the particular AQF level.

### Assessment context

Assessment of this unit must occur in a real or simulated workplace. Such an environment must provide an opportunity for the assessee to inspect and prepare materials for processing given:

- work procedures including advice on safe work practices, food safety and environmental requirements
- raw materials
- quality requirements/specifications
- recipe/batch instructions
- conveying equipment/systems
- preparation equipment/instrumentation
- work procedures relating to operation of preparation equipment/processes
- services
- relevant OHS clothing and equipment
- material safety data sheets as required
- cleaning schedule as required
- documentation and recording requirements and procedures

## Relationship to other units

### Co-requisites:

- Communicate in the workplace
- Apply basic mathematical concepts
- Apply safe work procedures
- Apply basic quality assurance practices
- Apply basic food safety practices

### Related units:

- Use basic product and stores knowledge to complete work operations
- Shift materials safely
- Use manual handling equipment
- Manually clean and sanitise equipment

Where related units are required to carry out basic ingredient preparation in the workplace, units should be co-assessed.

## Relationship to learning resources

### Main learning resources:

- Basic Ingredient Preparation
- Materials Handling A

### Related learning resources:

- Industrial Communication A
- Occupational Health & Safety A
- Quality Assurance A
- Food Safety A (Hygiene and Sanitation A)
- Materials Handling



<b>FDZ ZZDB2 A</b>	<b>Dispense non-bulk ingredients</b>
--------------------	--------------------------------------

**Descriptor** This is a specialist unit that has been developed for the confectionery sector. It covers the dispensing of non-bulk ingredients used in the manufacture of confectionery and chocolate products. This may include therapeutic ingredients.

**Range of variables**

The range of variables provides further advice to interpret the scope and context of this unit of competence. It assumes:

- Work is carried out in accordance with company procedures, licensing requirements, legislative requirements including requirements relating to use of therapeutic goods and customs and excise legislation and industrial awards and agreements
- Workplace information can include Standard Operating Procedures (SOPs), specifications, production schedules and batch/recipe instructions
- Materials include non-bulk ingredients and additives. Non-bulk additives may be highly concentrated materials such as colours, flavours, buffered acids, preservatives, therapeutic and other specialist ingredients
- Confirming status of measuring instrumentation may include checking that instrumentation meets cleaning and sanitation requirements and is measuring accurately. This can involve simple calibrations and checking calibration
- Control points refer to those key points in a work process which must be monitored and controlled. This includes food safety (critical), quality and regulatory control points as well as inspection points
- Additives may be weighed or measured and prepared as concentrated mixes used to dose a bulk batches
- Weighing and measuring typically involves the use of highly accurate instrumentation such as high accuracy scales, top hand balance, dispensary instrumentation, pipette. Weighing and dispensing may be automatically or manually controlled
- Information may be print or screen based
- Work may involve exposure to chemicals, dangerous or hazardous substances

Element	Performance criteria	Evidence guide – Part A
Measure and/or weigh ingredients	<p>Materials are inspected to confirm type, quality clearance and identify any obvious contamination or non-compliance</p> <p>Measuring and weighing equipment is checked to confirm readiness for use</p> <p>Materials are dispensed and labelled to meet batch/recipe requirements</p>	<p>Part A of the Evidence guide identifies the skills and knowledge to be demonstrated to confirm competence for this unit. Part B of the Evidence guide outlines how this guide is to be applied. Both parts should be read in conjunction with the Range of variables.</p> <p><b>Demonstrated ability to:</b></p> <ul style="list-style-type: none"> <li>- access workplace information to identify dispensing requirements</li> <li>- confirm that materials have received quality clearance</li> <li>- check appearance, colour and odour and information such as codes to confirm materials are correct type</li> <li>- identify out-of-specification additives or non-compliance and take appropriate corrective action</li> <li>- confirm status of measuring/weighing instrumentation (<i>cont.</i>)</li> </ul>

Element	Performance criteria	Evidence guide – Part A
Prepare ingredients for use	<p>Pre-mixes of concentrated ingredients are prepared according to recipe/batch instructions</p> <p>Pre-mixed additives are labeled and stored or transferred as required by production requirements</p>	<p><i>Demonstrated ability to: (continued)</i></p> <ul style="list-style-type: none"> <li>– liaise with other work areas</li> <li>– measure materials and additives within specified accuracy range</li> <li>– clean and sanitise dispensing instrumentation and equipment according to procedures</li> <li>– prepare additives as required. This may include preparation of pre-mixes</li> <li>– follow labeling procedures. This typically includes identifying batch numbers, dates of preparation, contents and use-by information</li> <li>– maintain work area and equipment to meet housekeeping standards</li> <li>– pack and label dispensed materials</li> <li>– stack dispensed product for transfer to designated location</li> <li>– store dispensed materials as required under appropriate conditions. This includes segregating materials as required</li> <li>– reconcile and record materials dispensed against materials released and return unused materials to storage as required</li> <li>– sort, collect, treat, recycle or dispose of waste</li> <li>– report/record dispensing information. Where necessary, this must comply with legislative requirements as apply to therapeutic additives</li> </ul> <p><b>Underpinning knowledge:</b></p> <ul style="list-style-type: none"> <li>– recipe and batch specifications and procedures</li> <li>– relevant legislative responsibilities for recording and tracing the use of ingredients and additives</li> <li>– properties, purpose, handling and storage</li> <li>– compatibility of materials and additives commonly used</li> <li>– importance of achieving a thoroughly mixed solution when preparing pre-mixes</li> <li>– principles of mixing oil and water-based ingredients and use of emulsifiers to prevent separation</li> <li>– purpose and measuring/accuracy capacity of instrumentation and related operating procedures</li> <li>– operating procedures for mix or blending equipment as required</li> <li>– calibration responsibilities and procedures as required</li> <li>– labeling requirements and purpose</li> <li>– significance and method of monitoring control points in the dispensing process (<i>cont.</i>)</li> </ul>
Clean instrumentation and dispose of waste	<p>Weighing, measuring and pre-mix preparation equipment is cleaned according to company procedures</p> <p>Waste is collected and disposed of according to company procedures</p>	

Element	Performance criteria	Evidence guide – Part A
Record information	Workplace information is recorded in the appropriate format	<p><i>Underpinning knowledge: (continued)</i></p> <ul style="list-style-type: none"> <li>– storage requirements and use-by limits</li> <li>– OHS hazards and controls. This includes an understanding of the use of personal protective clothing and equipment.</li> <li>– environmental issues and controls</li> <li>– procedures and responsibility for reporting problems</li> <li>– waste collection, treatment and/or disposal</li> <li>– cleaning, care and storage of equipment and instrumentation used</li> <li>– housekeeping requirements</li> <li>– recording requirements and procedures</li> </ul>

## Evidence guide – Part B

### Assessment guide

- Assessment must take account of the food industry's endorsed assessment guidelines and may use the non-endorsed *Assessment Framework for the Food and Beverage Processing Industry NFITC June 1995*.
- The competencies described in this unit need to be performed over time and events, under normal workplace conditions, having due regard for the key assessment principles of validity, reliability, fairness and flexibility.
- Assessment should be structured on whole of work activities giving emphasis to confirming that the assessee can achieve the workplace outcomes described in the Performance criteria, including demonstration of the underpinning knowledge and skills contained in the Evidence guide.
- The equipment used should be the actual items described in the Range of variables and Assessment context.
- The procedures and documentation should be those typically used in a workplace. Compliance with statutory occupational health and safety, food safety, hygiene and environmental requirements relevant to the food processing industry should be emphasised.
- Assessment should not require a higher level of communication competency than that specified in the core competencies for the particular AQF level.
- Assessment should reinforce the integration of the key competencies and the food industry's core competencies for the particular AQF level.

### Assessment context

Assessment of this unit must occur in a real or simulated workplace. Such an environment must provide an opportunity for the assessee to dispense and mix additives such as colours and flavours given:

- work procedures including advice on safe work practices, food safety and environmental requirements
- ingredients/additives
- appropriate storage areas
- recipe, batch instructions and related advice such as bill of materials
- production schedule, batch/recipe instructions
- measuring equipment and related preparation equipment
- specifications, control points and operating parameters
- services
- related work areas and communication system
- material safety data sheets where appropriate



- relevant OHS clothing and equipment
- cleaning schedule as required
- routine maintenance and calibration schedule as required
- documentation and recording requirements and procedures

### **Relationship to other units**

Pre-requisites or equivalent:

- Communicate in the workplace
- Apply basic mathematical concepts
- Apply safe work procedures
- Apply basic quality assurance practices
- Apply basic food safety practices

Co-requisites:

- Collect, present and apply workplace information
- Implement occupational health and safety principles and procedures
- Implement the quality system
- Implement the food safety plan

Related units:

- Conduct routine tests
- Apply sampling techniques
- Clean and sanitise equipment

Where related units are required to dispense non-bulk ingredients in the workplace, units should be co-assessed.

### **Relationship to learning resources**

Main learning resource:

- Dispensing non-bulk ingredients

Related learning resources:

- Industrial Communication B
- Occupational Health and Safety B
- Quality Assurance B
- Food Safety B (Hygiene and Sanitation B and C)
- Materials Handling C
- Routine Testing A: soluble solids, particle size and viscosity
- Routine Testing B: sensory testing
- Cleaning and Sanitation



**Descriptor** This is a specialist unit that has been developed for the confectionery sector. It covers the principles, equipment and procedures used to manufacture extruded products.

**Range of variables**

The range of variables provides further advice to interpret the scope and context of this unit of competence. It assumes:

- Work is carried out in accordance with company procedures, licensing requirements, legislative requirements and industrial awards and agreements
- Workplace information can include Standard Operating Procedures (SOPs), specifications, production schedules and batch/recipe instructions
- Confirming equipment status involves checking that hygiene and sanitation standards are met, all safety guards are in place and equipment is operational
- Typical equipment includes batch and continuous process cookers, extruders, cutting and stamping attachments and dryers
- Extruded products may include paste, licorice and lozenges
- Services may include power, steam, compressed and instrumentation air and water
- Monitoring the process may involve the use of production data such as performance control charts
- Process operation and monitoring functions may be manual or involve the use of a process control system
- Control points refer to those key points in a work process which must be monitored and controlled. This includes food safety (critical), quality and regulatory control points as well as inspection points
- Information systems may be print or screen based

Element	Performance criteria	Evidence guide – Part A
Prepare the extrusion process for operation	<p>Supply of cooked mass is available and ready for extrusion</p> <p>Services are confirmed as available and ready for operation</p> <p>Equipment is checked to confirm readiness for use</p> <p>The extrusion process is set to meet production requirements</p>	<p>Part A of the Evidence guide identifies the knowledge to be demonstrated to confirm competence for this unit. Part B of the Evidence guide outlines how this guide is to be applied. It should be read in conjunction with the Range of variables.</p> <p><b>Demonstrated ability to:</b></p> <ul style="list-style-type: none"> <li>- access ingredients list, production schedule and other workplace information to identify production requirements</li> <li>- select, fit and use personal protective clothing and/or equipment</li> <li>- confirm supply of necessary ingredients and services</li> <li>- liaise with other work areas</li> <li>- combine, heat and/or cook ingredients in correct sequence as set out in recipe/procedure</li> <li>- confirm equipment status and condition</li> <li>- set up extruding equipment to meet requirements. This typically includes settings for extruder rollers and /or heads</li> </ul> <p><i>(cont.)</i></p>

Element	Performance criteria	Evidence guide – Part A
<p>Operate and monitor the extrusion, stamping and cutting process</p>	<p>The extruder and related equipment are started up according to company procedures</p> <p>Control points are monitored to confirm performance is maintained within specification</p> <p>Extruded product meets specifications</p> <p>Equipment is monitored to confirm operating condition</p> <p>Out-of-specification product, process and equipment performance is identified, rectified and/or reported</p>	<p><i>Demonstrated ability to: (continued)</i></p> <ul style="list-style-type: none"> <li>– set up related equipment such as stamping and cutting equipment</li> <li>– extrude product</li> <li>– monitor process control points and operating parameters. This can include:                             <ul style="list-style-type: none"> <li>➢ characteristics of base such as gelatinisation/syrup viscosity, texture/hardness</li> <li>➢ thickness of extruded mass</li> <li>➢ drying/ moisture content</li> </ul> </li> <li>– take corrective action in response to out-of-specification results or non-compliance</li> <li>– follow workplace procedures for reworking product</li> <li>– conduct product or batch change-overs in accordance with production plan</li> <li>– shut down equipment in response to an emergency situation</li> <li>– shut down equipment in response to routine shut down requirements</li> </ul>
<p>Shut down the extrusion process</p>	<p>The extrusion process is shut down according to company procedures</p> <p>Waste is collected, treated or disposed of according to company procedures</p>	<ul style="list-style-type: none"> <li>– prepare equipment for cleaning</li> <li>– maintain work area to meet housekeeping standards</li> <li>– maintain production records</li> </ul> <p>May include the ability to:</p> <ul style="list-style-type: none"> <li>– clean and sanitise equipment</li> <li>– take samples and conduct test</li> <li>– conduct routine maintenance</li> </ul>
<p>Record information</p>	<p>Workplace information is recorded in the appropriate format The extrusion process</p>	<p><b>Underpinning knowledge:</b></p> <ul style="list-style-type: none"> <li>– purpose and basic principles of extruding. This includes an understanding of:                             <ul style="list-style-type: none"> <li>➢ ingredients used and their purpose</li> <li>➢ preparation of mass for extrusion</li> <li>➢ quality requirements of cooked mass to be extruded</li> <li>➢ process stages such as extruding, stamping and cutting and drying</li> </ul> </li> <li>– link to related processes</li> <li>– characteristics and preparation/handling requirements of ingredients used</li> <li>– process specifications, procedures and operating parameters</li> <li>– quality characteristics of extruded products</li> <li>– equipment components, purpose and principles of operation</li> <li>– basic understanding of process control system where relevant</li> <li>– services used</li> <li>– significance and method of monitoring control points within the process</li> </ul> <p><i>(cont.)</i></p>

Element	Performance criteria	Evidence guide – Part A
		<p><i>Underpinning knowledge: (continued)</i></p> <ul style="list-style-type: none"> <li>– common causes of variation and corrective action required</li> <li>– procedures and responsibility for reporting problems</li> <li>– rework requirements and procedures</li> <li>– OHS hazards and controls</li> <li>– lock out and tag out procedures</li> <li>– environmental issues and controls</li> <li>– shut down and cleaning requirements associated with changeovers and types of shut downs</li> <li>– waste handling requirements and procedures</li> <li>– recording requirements and procedures</li> </ul> <p>May include:</p> <ul style="list-style-type: none"> <li>– cleaning and sanitation procedures</li> <li>– sampling and testing procedures</li> <li>– routine maintenance procedures</li> </ul>

## Evidence guide – Part B

### Assessment guide

- Assessment must take account of the food industry's endorsed assessment guidelines and may use the non-endorsed *Assessment Framework for the Food and Beverage Processing Industry NFITC June 1995*.
- The competencies described in this unit need to be performed over time and events, under normal workplace conditions, having due regard for the key assessment principles of validity, reliability, fairness and flexibility.
- Assessment should be structured on whole of work activities giving emphasis to confirming that the assessee can achieve the workplace outcomes described in the Performance criteria, including demonstration of the underpinning knowledge and skills contained in the Evidence guide.
- The equipment used should be the actual items described in the Range of variables and Assessment context.
- The procedures and documentation should be those typically used in a workplace. Compliance with statutory occupational health and safety, food safety, hygiene and environmental requirements relevant to the food processing industry should be emphasised.
- Assessment should not require a higher level of communication competency than that specified in the core competencies for the particular AQF level.
- Assessment should reinforce the integration of the key competencies and the food industry's core competencies for the particular AQF level.

### Assessment context

Assessment of this unit must occur in a real or simulated workplace. Such an environment must provide an opportunity for the assessee to operate an extrusion process given:

- work procedures including advice on safe work practices, food safety and environmental requirements
- production schedule
- batch/recipe instructions
- specifications, control points and processing parameters
- cooked mass to be extruded

- extrusion and related equipment
- materials handling equipment/systems
- services
- sampling, and testing schedules as required
- related work areas and communication system
- relevant OHS clothing and equipment
- routine preventative maintenance schedule as required
- cleaning schedule as required
- documentation and recording requirements and procedures

### **Relationship to other units**

Pre-requisites or equivalent:

- Communicate in the workplace
- Apply basic mathematical concepts
- Apply safe work procedures
- Apply basic quality assurance practices
- Apply basic food safety practices

Co-requisites:

- Collect, present and apply workplace information
- Implement occupational health and safety principles and procedures
- Implement the quality system
- Implement the food safety plan

Related units:

- Conduct routine tests
- Clean and sanitise equipment
- Conduct routine preventative maintenance

Where related units are required to operate an extrusion process in the workplace, units should be co-assessed.

### **Relationship to learning resources**

Main learning resource:

- Extrusion A: The extrusion process

Related learning resources:

- Industrial Communication B
- Occupational Health and Safety B
- Quality Assurance B
- Food Safety B (Hygiene and Sanitation B and C)
- Routine Testing A: soluble solids, particle size and viscosity
- Routine Testing B: sensory testing
- Cleaning and Sanitation
- Extrusion B: Licorice, paste and lozenges

**Descriptor** This is a specialist unit that has been developed for the confectionery sector. It covers the principles, equipment and procedures used to manufacture sugar moulded products using a starch moulding process.

**Range of variables**

The range of variables provides further advice to interpret the scope and context of this unit of competence. It assumes:

- Work is carried out in accordance with company procedures, licensing requirements, legislative requirements and industrial awards and agreements
- Workplace information can include Standard Operating Procedures (SOPs), specifications, production schedules and batch/recipe instructions
- Confirming equipment status involves checking that hygiene and sanitation standards are met, all safety guards are in place and equipment is operational
- Typical equipment includes boiling pans (batch), moguls (continuous process), drying room and starch cleaning equipment.
- Typical starch moulded products include gums and jellies, marshmallows, caramels
- Materials may include starch and low or high boil syrups
- Services may include power, steam, compressed and instrumentation air, vacuum and water
- Monitoring the process may involve the use of production data such as performance control charts
- Process operation and monitoring functions may be manual or involve the use of a process control system
- Control points refer to those key points in a work process which must be monitored and controlled. This includes food safety (critical), quality and regulatory control points as well as inspection points
- Information systems may be print or screen based

Element	Performance criteria	Evidence guide – Part A
Prepare starch moulds	<p>Starch is correctly conditioned for moulding and depositing</p> <p>Starch moulding equipment is checked to confirm readiness for use</p> <p>Starch mould is prepared to meet production requirements</p>	<p>Part A of the Evidence guide identifies the knowledge to be demonstrated to confirm competence for this unit. Part B of the Evidence guide outlines how this guide is to be applied. It should be read in conjunction with the Range of variables.</p> <p><b>Demonstrated ability to:</b></p> <ul style="list-style-type: none"> <li>- access ingredients list, production schedule and other workplace information to identify production requirements</li> <li>- select, fit and use personal protective clothing and/or equipment</li> <li>- confirm starch condition and mould type</li> <li>- confirm supply of necessary materials and services</li> <li>- liaise with other work areas</li> <li>- deposit and stamp starch moulds</li> <li>- prepare product for depositing. This may involve controlling ingredient addition, heating and cooking</li> <li>- mix and cook ingredients to specifications</li> <li>- confirm equipment status and condition</li> </ul> <p><i>(cont.)</i></p>

Element	Performance criteria	Evidence guide – Part A
<p>Prepare the depositor for operation</p>	<p>Confirm availability of ingredients/mix to meet production requirements and transfer to depositing equipment</p> <p>Services are confirmed as available and ready for operation</p> <p>Equipment is checked to confirm readiness for use</p> <p>The starch moulding process is set to meet requirements</p>	<p><i>Demonstrated ability to: (continued)</i></p> <ul style="list-style-type: none"> <li>– set up depositor controls to meet production requirements</li> <li>– operate the depositing process</li> <li>– remove and stack trays</li> <li>– monitor process control points and operating parameters. This can include:                             <ul style="list-style-type: none"> <li>➢ maintaining supply of liquid mass to hopper</li> <li>➢ controlling weight of liquid deposited in mould</li> <li>➢ monitoring pump stroke settings</li> <li>➢ visual inspections to identify faults such as tailings and placement of liquid in mould</li> </ul> </li> <li>– monitor supply and flow of materials to and from the process</li> </ul>
<p>Operate and monitor the starch moulding process</p>	<p>Product is deposited</p> <p>Control points are monitored to confirm performance is maintained within specification</p> <p>Starch moulded product meets specification</p> <p>Equipment is monitored to confirm operating condition</p> <p>Out-of-specification product, process and equipment performance is identified, rectified and/or reported</p>	<ul style="list-style-type: none"> <li>– take corrective action in response to out-of-specification results or non-compliance.</li> <li>– conduct product/batch changeovers</li> <li>– follow workplace procedures for reworking out-of-specification product</li> <li>– conduct depositor head change-overs in accordance with production plan</li> <li>– set up and operate destarching and finishing equipment which can include blowing, oiling or sugaring clean starch and dry for re-use</li> <li>– dry and recycle starch</li> <li>– confirm handling and storage according to company procedures</li> <li>– report and/or record corrective action as required</li> <li>– shut down equipment in response to an emergency situation</li> </ul>
<p>Remove starch and finish product</p>	<p>Starch removal equipment is set up and operated</p> <p>Product is finished to meet production requirements</p>	<ul style="list-style-type: none"> <li>– shut down equipment in response to routine shut down requirements</li> <li>– prepare equipment for cleaning</li> <li>– maintain work area to meet housekeeping standards</li> <li>– maintain required production records</li> </ul>
<p>Shut down the starch moulding process</p>	<p>The starch moulding process is shut down according to company procedure</p> <p>Waste is collected, treated and disposed or recycled according to company procedures</p>	<p><b>May include the ability to:</b></p> <ul style="list-style-type: none"> <li>– clean and sanitise equipment</li> <li>– take samples and conduct tests</li> <li>– conduct routine maintenance</li> </ul> <p><b>Underpinning knowledge:</b></p> <ul style="list-style-type: none"> <li>– purpose and basic principles of starch moulding process. This may include                             <ul style="list-style-type: none"> <li>➢ starch mould preparation</li> <li>➢ product preparation and conditioning</li> <li>➢ product depositing</li> <li>➢ starch use and recovery cycle</li> </ul> </li> <li>– link to related processes</li> <li>– characteristics, preparation and handling requirements of ingredients and starch used. This includes the moisture absorption characteristics of starch and impact on the process</li> </ul> <p><i>(cont.)</i></p>



Element	Performance criteria	Evidence guide – Part A
Record information	Workplace information is recorded in the appropriate format	<p><i>Underpinning knowledge: (continued)</i></p> <ul style="list-style-type: none"> <li>– quality characteristics of starch moulded products</li> <li>– process specifications, procedures and operating parameters</li> <li>– equipment components, purpose and principles of operation</li> <li>– basic operating principles of process control systems where relevant</li> <li>– services used</li> <li>– significance and method of monitoring control points within the process</li> <li>– common causes of variation and corrective action required</li> <li>– lock out and tag out procedures</li> <li>– procedures and responsibility for reporting problems</li> <li>– environmental issues and controls</li> <li>– shut down and cleaning requirements associated with changeovers and types of shut downs</li> <li>– waste handling requirements and procedures</li> <li>– recording requirements and procedures</li> <li>– rework requirements and procedures</li> <li>– OHS hazards and controls</li> </ul> <p>May include:</p> <ul style="list-style-type: none"> <li>– cleaning and sanitation procedures</li> <li>– sampling and testing procedures</li> <li>– routine maintenance procedures</li> </ul>

## Evidence guide – Part B

### Assessment guide

- Assessment must take account of the food industry's endorsed assessment guidelines and may use the non-endorsed *Assessment Framework for the Food and Beverage Processing Industry NFITC June 1995*.
- The competencies described in this unit need to be performed over time and events, under normal workplace conditions, having due regard for the key assessment principles of validity, reliability, fairness and flexibility.
- Assessment should be structured on whole of work activities giving emphasis to confirming that the assessee can achieve the workplace outcomes described in the Performance criteria, including demonstration of the underpinning knowledge and skills contained in the Evidence guide.
- The equipment used should be the actual items described in the Range of variables and Assessment context.
- The procedures and documentation should be those typically used in a workplace. Compliance with statutory occupational health and safety, food safety, hygiene and environmental requirements relevant to the food processing industry should be emphasised.
- Assessment should not require a higher level of communication competency than that specified in the core competencies for the particular AQF level.
- Assessment should reinforce the integration of the key competencies and the food industry's core competencies for the particular AQF level.

### **Assessment context**

Assessment of this unit must occur in a real or simulated workplace. Such an environment must provide an opportunity for the assessee to operate a starch moulding process given:

- work procedures including advice on safe work practices, food safety and environmental requirements
- production schedule
- recipe/batch instructions
- materials, including starch for moulding and ingredients/mix to be deposited
- equipment including moulds, starch stamping and mould preparation and depositing equipment
- materials handling equipment/systems
- specifications, control points and processing parameters
- services
- sampling, and testing schedules as required
- related work areas and communication system
- relevant OHS clothing and equipment
- routine preventative maintenance schedule as required
- cleaning schedule as required
- documentation and recording requirements and procedures

### **Relationship to other units**

This unit covers a similar set of skills and knowledge as *Manufacture starch moulded products*. For the purposes of gaining a Certificate, only one of these units can be counted.

Pre-requisites or equivalent:

- Communicate in the workplace
- Apply basic mathematical concepts
- Apply safe work procedures
- Apply basic quality assurance practices
- Apply basic food safety practices

Co-requisites:

- Collect, present and apply workplace information
- Implement occupational health and safety principles and procedures
- Implement the quality system
- Implement the food safety plan

Related units:

- Conduct routine tests
- Apply sampling techniques
- Clean and sanitise equipment
- Conduct routine preventative maintenance
- Manufacture boiled sugar confectionery

Where related units are required to operate a starch moulding process in the workplace, units should be co-assessed.

## **Relationship to learning resources**

Main learning resource:

- Depositing A: The depositing process

## **Related learning resources:**

- Industrial Communication B
- Occupational Health and Safety B
- Quality Assurance B
- Food Safety B (Hygiene and Sanitation B and C)
- Routine Testing A: soluble solids, particle size and viscosity
- Routine Testing B: sensory testing
- Cleaning and Sanitation
- Low Boil Products
- Depositing B: Gums, jellies, and marshmallows



**Descriptor** This is a specialist unit that has been developed for the confectionery sector. It covers the principles, equipment and procedures used to manufacture products by depositing into solid or flexible moulds. This is sometimes known as starchless moulding.

**Range of variables**

The range of variables provides further advice to interpret the scope and context of this unit of competence. It assumes:

- Work is carried out in accordance with company procedures, licensing requirements, legislative requirements and industrial awards and agreements
- Workplace information can include Standard Operating Procedures (SOPs), specifications, production schedules and batch/recipe instructions
- Confirming equipment status involves checking that hygiene and sanitation standards are met, all safety guards are in place and equipment is operational
- Typical equipment includes a depositing hopper, nozzles and manifold, moulds, cooling tunnel
- Typical deposited products include low boils
- Services may include power, steam, compressed and instrumentation air, vacuum and water
- Materials may include low or high boil syrups
- Monitoring the process may involve the use of production data such as performance control charts
- Process operation and monitoring functions may be manual or involve the use of a process control system
- Control points refer to those key points in a work process which must be monitored and controlled. This includes food safety (critical), quality and regulatory control points as well as inspection points
- Information systems may be print or screen based

Element	Performance criteria	Evidence guide – Part A
Prepare the depositing process for operation	Syrup and ingredients are prepared to meet recipe requirements  Syrup is transferred to depositing equipment  Services are confirmed as available and ready for operation  Equipment is checked to confirm readiness for use  The depositing process is set to meet requirements	Part A of the Evidence guide identifies the knowledge to be demonstrated to confirm competence for this unit. Part B of the Evidence guide outlines how this guide is to be applied. It should be read in conjunction with the Range of variables.  <b>Demonstrated ability to:</b> <ul style="list-style-type: none"> <li>- access ingredients list, production schedule and other workplace information to identify production requirements</li> <li>- select, fit and use personal protective clothing and/or equipment</li> <li>- confirm supply of necessary materials and services</li> <li>- liaise with other work areas</li> <li>- prepare materials as required</li> <li>- confirm equipment status and condition</li> <li>- set up depositor controls to meet production requirements</li> <li>- operate the depositing process. This includes confirming that moulds are clean and ready for use (<i>cont.</i>)</li> </ul>

Element	Performance criteria	Evidence guide – Part A
Operate and monitor the depositing process	<p>Product is deposited</p> <p>Control points are monitored to confirm performance is maintained within specification</p> <p>Deposited product meets specification</p> <p>Equipment is monitored to confirm operating condition</p> <p>Out-of-specification product, process and equipment performance is identified, rectified and/or reported</p>	<p><i>Demonstrated ability to: (continued)</i></p> <ul style="list-style-type: none"> <li>– set and monitor cooling process</li> <li>– demould product</li> <li>– monitor process control points and operating parameters. This can include: <ul style="list-style-type: none"> <li>➢ maintaining supply of high boil syrup to hopper</li> <li>➢ controlling weight of liquid deposited in mould</li> </ul> </li> <li>– pump stroke settings <ul style="list-style-type: none"> <li>➢ visual inspections to identify faults such as tailings and placement of liquid in mould</li> <li>➢ cooling tunnel temperature profile</li> <li>➢ shrinkage/demoulding process</li> </ul> </li> <li>– take corrective action in response to out-of-specification results or non-compliance</li> <li>– conduct product/batch changeovers</li> </ul>
Shut down the depositing process	<p>The depositing process is shut down according to company procedures</p> <p>Waste is collected, treated and disposed or recycled according to company procedures</p>	<ul style="list-style-type: none"> <li>– follow workplace procedures for reworking out-of-specification product</li> <li>– conduct depositor head change-overs in accordance with production plan</li> <li>– set up and operate finishing equipment which can include blowing, oiling or sugaring</li> <li>– clean starch and dry for re-use</li> <li>– sort, collect, treat, recycle or dispose of waste</li> <li>– shut down equipment in response to an emergency situation</li> </ul>
Record information	<p>Workplace information is recorded in the appropriate format</p>	<ul style="list-style-type: none"> <li>– shut down equipment in response to routine shut down requirements</li> <li>– prepare equipment for cleaning</li> <li>– maintain work area to meet housekeeping standards</li> <li>– maintain required production records</li> </ul> <p>May include the ability to:</p> <ul style="list-style-type: none"> <li>– clean and sanitise equipment</li> <li>– take samples and conduct test</li> <li>– conduct routine maintenance</li> </ul> <p><b>Underpinning knowledge:</b></p> <ul style="list-style-type: none"> <li>– purpose and basic principles of depositing. This may include: <ul style="list-style-type: none"> <li>➢ product preparation and conditioning</li> <li>➢ product depositing</li> </ul> </li> <li>– characteristics, handling and preparation requirements of ingredients used</li> <li>– quality characteristics of deposited products</li> <li>– process specifications, procedures and operating parameters</li> <li>– equipment components, purpose and principles of operation</li> <li>– basic operating principles of process control systems where relevant</li> <li>– services used</li> </ul> <p><i>(cont.)</i></p>

Element	Performance criteria	Evidence guide – Part A
		<p><i>Underpinning knowledge: (continued)</i></p> <ul style="list-style-type: none"> <li>– significance and method of monitoring control points within the process</li> <li>– common causes of variation and corrective action required</li> <li>– rework requirements and procedures</li> <li>– OHS hazards and controls</li> <li>– lock out and tag out procedures</li> <li>– environmental issues and controls</li> <li>– shut down and cleaning requirements associated with changeovers and types of shut downs</li> <li>– waste handling requirements and procedures</li> <li>– recording requirements and procedures</li> </ul> <p>May include:</p> <ul style="list-style-type: none"> <li>– cleaning and sanitation procedures</li> <li>– sampling and testing procedures</li> <li>– routine maintenance procedures</li> </ul>

## Evidence guide – Part B

### Assessment guide

- Assessment must take account of the food industry's endorsed assessment guidelines and may use the non-endorsed *Assessment Framework for the Food and Beverage Processing Industry NFITC June 1995*.
- The competencies described in this unit need to be performed over time and events, under normal workplace conditions, having due regard for the key assessment principles of validity, reliability, fairness and flexibility.
- Assessment should be structured on whole of work activities giving emphasis to confirming that the assessee can achieve the workplace outcomes described in the Performance criteria, including demonstration of the underpinning knowledge and skills contained in the Evidence guide.
- The equipment used should be the actual items described in the Range of variables and Assessment context.
- The procedures and documentation should be those typically used in a workplace. Compliance with statutory occupational health and safety, food safety, hygiene and environmental requirements relevant to the food processing industry should be emphasised.
- Assessment should not require a higher level of communication competency than that specified in the core competencies for the particular AQF level.
- Assessment should reinforce the integration of the key competencies and the food industry's core competencies for the particular AQF level.

### Assessment context

Assessment of this unit must occur in a real or simulated workplace. Such an environment must provide an opportunity for the assessee to operate a starchless depositing process given:

- work procedures including advice on safe work practices, food safety and environmental requirements
- production schedule
- recipe/batch instructions
- ingredients/mix to be deposited
- equipment including conditioned moulds and depositing equipment

- materials handling equipment/systems
- specifications, control points and processing parameters
- services
- sampling, and testing schedules as required
- related work areas and communication system
- relevant OHS clothing and equipment
- routine preventative maintenance schedule as required
- cleaning schedule as required
- documentation and recording requirements and procedures

### **Relationship to other units**

This unit covers a similar set of skills and knowledge as *Manufacture starch moulded products*. For the purposes of gaining a Certificate, only one of these units can be counted.

Pre-requisites or equivalent:

- Communicate in the workplace
- Apply basic mathematical concepts
- Apply safe work procedures
- Apply basic quality assurance practices
- Apply basic food safety practices

Co-requisites:

- Collect, present and apply workplace information
- Implement occupational health and safety principles and procedures
- Implement the quality system
- Implement the food safety plan

Related units:

- Conduct routine tests
- Clean and sanitise equipment
- Conduct routine preventative maintenance
- Manufacture boiled sugar confectionery

Where related units are required to operate a depositing process in the workplace, units should be co-assessed.

### **Relationship to learning resources**

Main learning resource:

- Depositing A: the depositing process

Related learning resources:

- Industrial Communication B
- Occupational Health and Safety B
- Quality Assurance B
- Food Safety B (Hygiene and Sanitation B and C)
- Routine Testing A: soluble solids, particle size and viscosity
- Routine Testing B: sensory testing
- Cleaning and Sanitation
- Depositing B: Gums, jellies, caramels and marshmallows
- Low Boil Products



**Descriptor** This is a specialist unit that has been developed for the confectionery sector. It covers the principles, equipment and procedures used to manufacture high boil and low boil sugar confectionery.

**Range of variables**

The range of variables provides further advice to interpret the scope and context of this unit of competence. It assumes:

- Work is carried out in accordance with company procedures, licensing requirements, legislative requirements and industrial awards and agreements
- Workplace information can include Standard Operating Procedures (SOPs), specifications, production schedules and batch/recipe instructions
- Confirming equipment status involves checking that hygiene and sanitation standards are met, all safety guards are in place and equipment is operational
- Examples of high boil products include solid, striped and filled confectionery
- Examples of low boil products may include caramels, nougats, creams, fudge, fondant, toffee, marshmallows, gums, jellies, licorice, paste, lozenges and fruit bars
- Services may include power, steam, compressed and instrumentation air, vacuum and water
- Typical equipment includes pan or vacuum cookers, cold or marble tables and further processing equipment depending on use, such as forming, filling, pulling, beating, stamping, cooling equipment and crystallising/beating equipment
- Monitoring the process may involve the use of production data such as performance control charts
- Process operation and monitoring functions may be manual or involve the use of a process control system
- Control points refer to those key points in a work process which must be monitored and controlled. This includes food safety (critical), quality and regulatory control points as well as inspection points
- Information systems may be print or screen based

Element	Performance criteria	Evidence guide – Part A
Prepare syrup	Ingredients are selected and combined in the sequence specified by batch/recipe instructions	Part A of the Evidence guide identifies the knowledge to be demonstrated to confirm competence for this unit. Part B of the Evidence guide outlines how this guide is to be applied. It should be read in conjunction with the Range of variables.
Prepare the high/low boil process for operation	<p>Services are confirmed as available and ready for operation</p> <p>Equipment is checked to confirm readiness for use</p> <p>The process is set to meet production requirements</p>	<p><b>Demonstrated ability to:</b></p> <ul style="list-style-type: none"> <li>- access ingredients list, production schedule and other workplace information to identify production requirements</li> <li>- select, fit and use personal protective clothing and/or equipment</li> <li>- confirm supply of necessary materials and services</li> <li>- liaise with other work areas</li> <li>- combine ingredients in correct sequence according to recipe instructions</li> <li>- confirm equipment status and condition (cont.)</li> </ul>

Element	Performance criteria	Evidence guide – Part A
<p>Operate and monitor the process</p>	<p>Product is heated, cooked and cooled according to company procedures</p> <p>Ingredients and/or additives are added as required</p> <p>Control points are monitored to confirm performance is maintained within specification</p> <p>Equipment is monitored to confirm operating condition</p> <p>The high/low boil product meets specification</p> <p>Out-of-specification product, process and equipment performance is identified, rectified and/or reported</p>	<p><i>Demonstrated ability to: (continued)</i></p> <ul style="list-style-type: none"> <li>– set high/low boil equipment as required. This may include setting dosing/metering and related addition systems and loading or controlling loading of bulk ingredients, setting temperatures and operating vacuum</li> <li>– mix and cook syrup and other ingredients according to recipe/instructions</li> <li>– monitor process control points and operating parameters. This can include: <ul style="list-style-type: none"> <li>➤ mixing tank temperature</li> <li>➤ cooking temperatures</li> <li>➤ vacuum settings (where relevant)</li> <li>➤ moisture content</li> <li>➤ ingredient addition as required</li> <li>➤ product weight</li> <li>➤ appearance and organoleptic characteristics</li> </ul> </li> <li>– monitor supply and flow of materials to and from the process</li> <li>– take corrective action in response to out-of-specification results or non-compliance</li> <li>– further process product to meet specifications.</li> </ul>
<p>Shut down the high boil/low boil process</p>	<p>The process is shut down according to company procedure</p> <p>Waste is collected, treated and disposed or recycled according to company procedures</p>	<ul style="list-style-type: none"> <li>– follow workplace procedures for reworking scrap or out-of-specification product</li> <li>– conduct product or batch change-overs in accordance with production plan</li> <li>– shut down equipment in response to an emergency situation</li> <li>– shut down equipment in response to routine</li> </ul>

<p>Record information</p>	<p>Workplace information is recorded in the appropriate format</p>	<p>shut down requirements</p> <ul style="list-style-type: none"> <li>- prepare equipment for cleaning</li> <li>- maintain work area to meet housekeeping standards</li> <li>- maintain required production records</li> </ul> <p>May include the ability to:</p> <ul style="list-style-type: none"> <li>- clean and sanitise equipment</li> <li>- take samples and conduct test</li> <li>- conduct routine maintenance</li> </ul> <p><b>Underpinning knowledge:</b></p> <ul style="list-style-type: none"> <li>- purpose and basic principles of the high/low boil manufacture process. This includes: <ul style="list-style-type: none"> <li>➤ ingredients used and their purpose</li> <li>➤ syrup making (super saturated solutions)</li> <li>➤ relationship between temperature and moisture content</li> <li>➤ reactions such as crystallisation</li> <li>➤ process stages</li> <li>➤ maturation and further processing requirements</li> </ul> </li> <li>- process stages, procedures and operating parameters</li> <li>- quality characteristics and uses of high/low boils</li> </ul> <p><i>(cont.)</i></p>
---------------------------	--	--

Element	Performance criteria	Evidence guide – Part A
		<p><i>Underpinning knowledge: (continued)</i></p> <ul style="list-style-type: none"> <li>– methods used to further process high and low boils. This includes basic forming or extruding and stamping, cooling, pulling and aerating</li> <li>– equipment components, purpose and principles of operation. This includes a basic understanding of the effect of vacuum on the cooking process and further processing equipment</li> <li>– services used</li> <li>– significance and method of monitoring control points within the process</li> <li>– common causes of variation and corrective action required. This includes factors which affect shelf-life</li> <li>– rework requirements and procedures</li> <li>– storage requirements</li> <li>– OHS hazards and controls</li> <li>– lock out and tag out procedures</li> <li>– environmental issues and controls</li> <li>– shut down and cleaning requirements associated with changeovers and types of shut downs</li> <li>– waste handling requirements and procedures</li> <li>– recording requirements and procedures</li> </ul> <p>May include:</p> <ul style="list-style-type: none"> <li>– cleaning and sanitation procedures</li> <li>– sampling and testing procedures</li> <li>– routine maintenance procedures</li> </ul>

## Evidence guide – Part B

### Assessment guide

- Assessment must take account of the food industry’s endorsed assessment guidelines and may use the non-endorsed *Assessment Framework for the Food and Beverage Processing Industry NFITC June 1995*.
- The competencies described in this unit need to be performed over time and events, under normal workplace conditions, having due regard for the key assessment principles of validity, reliability, fairness and flexibility.
- Assessment should be structured on whole of work activities giving emphasis to confirming that the assessee can achieve the workplace outcomes described in the Performance criteria, including demonstration of the underpinning knowledge and skills contained in the Evidence guide.
- The equipment used should be the actual items described in the Range of variables and Assessment context.
- The procedures and documentation should be those typically used in a workplace. Compliance with statutory occupational health and safety, food safety, hygiene and environmental requirements relevant to the food processing industry should be emphasised.
- Assessment should not require a higher level of communication competency than that specified in the core competencies for the particular AQF level.
- Assessment should reinforce the integration of the key competencies and the food industry’s core competencies for the particular AQF level.

**Assessment context**

Assessment of this unit must occur in a real or simulated workplace. Such an environment must provide an opportunity for the assessee to manufacture high boil or low boil products given:

- work procedures including advice on safe work practices, food safety and environmental requirements
- production schedule
- batch/recipe instructions
- ingredients and additives required
- equipment including mixing equipment, cookers, coolers and related equipment
- materials handling equipment/systems
- specifications, control points and processing parameters
- services
- related work areas and communication system
- relevant OHS clothing and equipment
- sampling, and testing schedules as required
- routine preventative maintenance schedule as required
- cleaning schedule as required
- documentation and recording requirements and procedures

**Relationship to other units**

Pre-requisites or equivalent:

- Communicate in the workplace
- Apply basic mathematical concepts
- Apply safe work procedures
- Apply basic quality assurance practices
- Apply basic food safety practices

Co-requisites:

- Collect, present and apply workplace information
- Implement occupational health and safety principles and procedures
- Implement the quality system
- Implement the food safety plan

Related units:

- Conduct routine tests
- Clean and sanitise equipment
- Conduct routine preventative maintenance
- Manufacture starch moulded products
- Manufacture deposited products
- Manufacture extruded products

Where related units are required to produce low/high boils in the workplace, units should be co-assessed.

## Relationship to learning resources

Main learning resource:

- High Boil Products
- Low Boil Products
- Depositing B: Gums, jellies and marshmallows
- Extrusion B: Licorice, paste, lozenges and bars
- Aeration

Related learning resources:

- Industrial Communication B
- Occupational Health and Safety B
- Quality Assurance B
- Food Safety B (Hygiene and Sanitation B and C)
- Routine Testing A: soluble solids, particle size and viscosity
- Routine Testing B: sensory testing
- Cleaning and Sanitation
- Depositing A
- Aeration A







**Descriptor** This is a specialist unit that has been developed for the confectionery sector. It covers the principles, equipment and procedures used to manufacture compressed confectionery such as tablets.

**Range of variables**

The range of variables provides further advice to interpret the scope and context of this unit of competence. It assumes:

- Work is carried out in accordance with company procedures, licensing requirements, legislative requirements and industrial awards and agreements
- Workplace information can include Standard Operating Procedures (SOPs), specifications, production schedules and batch/recipe instructions
- Confirming equipment status involves checking line clearance, that hygiene and sanitation standards are met, all safety guards are in place and equipment is operational
- Granulating equipment may include mixers, granulators, sieves, hammer mills and dryers
- Compressing equipment and accessories may include single or rotary punch compressors, punches, dies
- Granulation process may be wet or dry
- Services may include power, compressed and instrumentation air and water
- Raw materials/ingredients which are added to the base product, adhesives/binders, lubricants, fillers, colours and flavours
- Monitoring the process may involve the use of production data such as performance control charts
- In-process tests may include appearance, hardness, friability, disintegration time, weight, dimensions
- Process operation and monitoring functions may be manual or involve the use of a process control system
- Control points refer to those key points in a work process which must be monitored and controlled. This includes food safety (critical), quality and regulatory control points as well as inspection points
- Information systems may be print or screen based

Element	Performance criteria	Evidence guide – Part A
Prepare ingredients for compression	<p>Ingredients are confirmed and available to meet production/recipe requirements</p> <p>Ingredients are combined in specified sequence</p> <p>The granulation process is set up and operated to produce granules of the required size</p>	<p>Part A of the Evidence guide identifies the skills and knowledge to be demonstrated to confirm competence for this unit. Part B of the Evidence guide outlines how this guide is to be applied. Both parts should be read in conjunction with the Range of variables.</p> <p><b>Demonstrated ability to:</b></p> <ul style="list-style-type: none"> <li>- access ingredients list, production schedule and other workplace information to identify production requirements</li> <li>- confirm equipment status and condition</li> <li>- prepare granulated mix according to recipe instructions</li> <li>- set granulation equipment <i>(cont.)</i></li> </ul>

Element	Performance criteria	Evidence guide – Part A
Prepare compression process for operation	<p>The compression process is set to production specifications</p> <p>Services are confirmed as available and ready for operation</p> <p>Equipment is checked to confirm readiness for use</p> <p>The compression process is set to meet specifications</p>	<p><i>Demonstrated ability to: (continued)</i></p> <ul style="list-style-type: none"> <li>– operate granulation and related equipment</li> <li>– monitor the granulation process. This can include: <ul style="list-style-type: none"> <li>➤ granule size</li> <li>➤ moisture content</li> <li>➤ fines</li> </ul> </li> <li>– confirm compression equipment status and condition</li> <li>– set up compression equipment. This may include installing/setting punches and dies</li> <li>– supply materials to compression process</li> </ul>
Operate and monitor the process	<p>The compression process is started up according to company procedure</p> <p>Compressed products meet specification</p> <p>Equipment is monitored to confirm operating condition</p> <p>Out-of-specification product, process and equipment performance is identified, rectified and/or reported</p>	<ul style="list-style-type: none"> <li>– operate compression equipment</li> <li>– monitor the compression process. This may include: <ul style="list-style-type: none"> <li>➤ maintain supply of materials</li> <li>➤ inspection of appearance of product</li> <li>➤ product weight, thickness and hardness</li> </ul> </li> <li>– take corrective action in response to out-of-specification results or non-compliance</li> <li>– conduct product/batch changeovers</li> <li>– report and/or record corrective action as required</li> <li>– sort, collect, treat, recycle or dispose of waste</li> </ul>
Shut down the process	<p>The process is shut down according to company procedure</p> <p>Waste is collected, disposed of or recycled according to company procedures</p>	<ul style="list-style-type: none"> <li>– shut down equipment in response to an emergency shut down</li> <li>– shut down equipment in response to routine shut requirements</li> <li>– prepare equipment for cleaning</li> <li>– maintain work area to meet housekeeping standards</li> <li>– maintain required production records</li> </ul>
Record information	<p>Workplace information is recorded in the appropriate format</p>	<p>May include the ability to:</p> <ul style="list-style-type: none"> <li>– clean and sanitise equipment</li> <li>– take samples and conduct test</li> <li>– conduct routine maintenance</li> </ul> <p><b>Underpinning knowledge:</b></p> <ul style="list-style-type: none"> <li>– purpose of the granulation and compression process</li> <li>– link to related processes</li> <li>– key variables in the granulation and compression processes</li> <li>– process specifications, procedures and operating parameters</li> <li>– equipment and instrumentation components, purpose and operation</li> <li>– basic operating principles of process control systems where relevant</li> <li>– services used</li> <li>– significance and method of monitoring control points within the process</li> </ul> <p><i>(cont.)</i></p>

Element	Performance criteria	Evidence guide – Part A
		<p><i>Underpinning knowledge: (continued)</i></p> <ul style="list-style-type: none"> <li>– common causes of variation and corrective action required</li> <li>– OHS hazards and controls</li> <li>– lock out and tag out procedures</li> <li>– procedures and responsibility for reporting problems</li> <li>– environmental issues and controls</li> <li>– shut down and cleaning requirements associated with changeovers and types of shut downs</li> <li>– waste handling requirements and procedures</li> <li>– recording requirements and procedures</li> </ul> <p>May include:</p> <ul style="list-style-type: none"> <li>– cleaning and sanitation procedures</li> <li>– sampling and testing procedures</li> <li>– routine maintenance procedures</li> </ul>

## Evidence guide – Part B

### Assessment guide

- Assessment must take account of the food industry's endorsed assessment guidelines and may use the non-endorsed *Assessment Framework for the Food and Beverage Processing Industry NFITC June 1995*.
- The competencies described in this unit need to be performed over time and events, under normal workplace conditions, having due regard for the key assessment principles of validity, reliability, fairness and flexibility.
- Assessment should be structured on whole of work activities giving emphasis to confirming that the assessee can achieve the workplace outcomes described in the Performance criteria, including demonstration of the underpinning knowledge and skills contained in the Evidence guide.
- The equipment used should be the actual items described in the Range of variables and Assessment context.
- The procedures and documentation should be those typically used in a workplace. Compliance with statutory occupational health and safety, food safety, hygiene and environmental requirements relevant to the food processing industry should be emphasised.
- Assessment should not require a higher level of communication competency than that specified in the core competencies for the particular AQF level.
- Assessment should reinforce the integration of the key competencies and the food industry's core competencies for the particular AQF level.

### Assessment context

Assessment of this unit must occur in a real or simulated workplace. Such an environment must provide an opportunity for the assessee to produce compressed confectionery products given:

- work procedures including advice on safe work practices, food safety and environmental requirements
- production schedule
- recipe/batch instructions
- ingredients/mix to be compressed
- granulation, drying and compression equipment

- materials handling equipment/systems
- specifications, control points and processing parameters
- services
- sampling, and testing schedules as required
- related work areas and communication system
- relevant OHS clothing and equipment
- routine preventative maintenance schedule as required
- cleaning schedule as required
- documentation and recording requirements and procedures

### **Relationship to other units**

Pre-requisites or equivalent:

- Communicate in the workplace
- Apply basic mathematical concepts
- Apply safe work procedures
- Apply basic quality assurance practices
- Apply basic food safety practices

Co-requisites:

- Collect, present and apply workplace information
- Implement occupational health and safety principles and procedures
- Implement the quality system
- Implement the food safety plan

Related units:

- Conduct routine tests
- Clean and sanitise equipment
- Conduct routine preventative maintenance

Where related units are required to operate a compression process in the workplace, units should be co-assessed.

### **Relationship to learning resources**

Main learning resource:

- Producing Compressed Confectionery Products

Related learning resources:

- Industrial Communication B
- Occupational Health and Safety B
- Quality Assurance B
- Food Safety B (Hygiene and Sanitation B and C)
- Routine Testing A: soluble solids, particle size and viscosity
- Routine Testing B: sensory testing
- Cleaning and Sanitation

**Descriptor** This is a specialist unit that has been developed for the confectionery sector. It covers the principles, equipment and procedures used to manufacture panned confectionery products.

**Range of variables**

The range of variables provides further advice to interpret the scope and context of this unit of competence. It assumes:

- Work is carried out in accordance with company procedures, licensing requirements, legislative requirements and industrial awards and agreements
- Workplace information can include Standard Operating Procedures (SOPs), specifications, production schedules and batch/recipe instructions
- Confirming equipment status involves checking that hygiene and sanitation standards are met, all safety guards are in place and equipment is operational
- Services may include power, steam, compressed, instrumentation and drying air and water
- Typical equipment includes coating pans, polishing pans, air blowing units and jacketed spray nozzles/heads
- Panning includes hard and soft (sugar) panning and chocolate coating
- Monitoring the process may involve the use of production data such as performance control charts
- Process operation and monitoring functions may be manual or involve the use of a process control system
- Control points refer to those key points in a work process which must be monitored and controlled. This includes food safety (critical), quality and regulatory control points as well as inspection points
- Information systems may be print or screen based

Element	Performance criteria	Evidence guide – Part A
Prepare centers and coating	Centers and coating are selected and prepared according to batch/recipe instructions	Part A of the Evidence guide identifies the knowledge to be demonstrated to confirm competence for this unit. Part B of the Evidence guide outlines how this guide is to be applied. It should be read in conjunction with the Range of variables.  <b>Demonstrated ability to:</b> <ul style="list-style-type: none"> <li>- access workplace information to identify production requirements</li> <li>- select, fit and use personal protective clothing and/or equipment</li> <li>- confirm supply of necessary centers and coating material (syrup or chocolate)</li> <li>- liaise with other work areas</li> <li>- confirm panning equipment status and condition</li> <li>- prepare/coat pans as required</li> <li>- set up and operate the panning process</li> <li>- monitor process control points and operating parameters. This can include:                             <ul style="list-style-type: none"> <li>➢ syrup/chocolate addition rate</li> <li>➢ sieving</li> <li>➢ colour addition</li> <li>➢ drying air temperature and flow</li> <li>➢ addition of polishing agent/gum</li> </ul>                             (cont.)                         </li> </ul>
Prepare the process for operation	Services are confirmed as available and ready for operation  Equipment is checked to confirm readiness for use  The panning process is set to meet specifications	
Operate and monitor the panning process	The process is started up according to company specifications  Control points are monitored to confirm performance is maintained within specification  Equipment is monitored to confirm operating condition	

Element	Performance criteria	Evidence guide – Part A
Operate and monitor the panning process (cont.)	Out-of-specification product, process and equipment performance is identified, rectified and/or reported	<p><i>Demonstrated ability to: (continued)</i></p> <ul style="list-style-type: none"> <li>– take corrective action in response to out-of-specification results or non-compliance</li> <li>– follow workplace procedures for reworking scrap or out-of-specification product</li> <li>– conduct product or batch change-overs in accordance with production plan</li> </ul>
Shut down the panning process	<p>The panning process is shut down according to company procedure</p> <p>Waste is collected, treated and disposed or recycled according to company procedures</p>	<ul style="list-style-type: none"> <li>– report and/or record corrective action as required</li> <li>– shut down equipment in response to an emergency situation</li> <li>– shut down equipment in response to routine shut down requirements</li> <li>– prepare equipment for cleaning</li> <li>– maintain work area to meet housekeeping standards</li> <li>– maintain required production records</li> </ul>
Record information	Workplace information is recorded in the appropriate format	<p>May include the ability to:</p> <ul style="list-style-type: none"> <li>– clean and sanitise equipment</li> <li>– take samples and conduct test</li> <li>– conduct routine maintenance</li> </ul> <p><b>Underpinning knowledge:</b></p> <ul style="list-style-type: none"> <li>– purpose and basic principles of the panning. This includes: <ul style="list-style-type: none"> <li>➤ center preparation</li> <li>➤ coating preparation</li> <li>➤ panning process</li> </ul> </li> <li>– link to related processes</li> <li>– characteristics and preparation/handling requirements of ingredients used</li> <li>– process specifications, procedures and operating parameters</li> <li>– quality characteristics of panned products</li> <li>– equipment components, purpose and principles of operation</li> <li>– basic understanding of process control system where relevant</li> <li>– services used</li> <li>– significance and method of monitoring control points within the process</li> <li>– common causes of variation and corrective action required</li> <li>– rework requirements and procedures</li> <li>– OHS hazards and controls</li> <li>– lock out and tag out procedures</li> <li>– environmental issues and controls</li> <li>– shut down and cleaning requirements associated with changeovers and types of shut downs</li> <li>– waste handling requirements and procedures (cont.)</li> </ul>

Element	Performance criteria	Evidence guide – Part A
		<p><i>Underpinning knowledge: (continued)</i></p> <ul style="list-style-type: none"> <li>– recording requirements and procedures</li> </ul> <p><b>May include:</b></p> <ul style="list-style-type: none"> <li>– cleaning and sanitation procedures</li> <li>– sampling and testing procedures</li> <li>– routine maintenance procedures</li> </ul>

## Evidence guide – Part B

### Assessment guide

- Assessment must take account of the food industry's endorsed assessment guidelines and may use the non-endorsed *Assessment Framework for the Food and Beverage Processing Industry NFITC June 1995*.
- The competencies described in this unit need to be performed over time and events, under normal workplace conditions, having due regard for the key assessment principles of validity, reliability, fairness and flexibility.
- Assessment should be structured on whole of work activities giving emphasis to confirming that the assessee can achieve the workplace outcomes described in the Performance criteria, including demonstration of the underpinning knowledge and skills contained in the Evidence guide.
- The equipment used should be the actual items described in the Range of variables and Assessment context.
- The procedures and documentation should be those typically used in a workplace. Compliance with statutory occupational health and safety, food safety, hygiene and environmental requirements relevant to the food processing industry should be emphasised.
- Assessment should not require a higher level of communication competency than that specified in the core competencies for the particular AQF level.
- Assessment should reinforce the integration of the key competencies and the food industry's core competencies for the particular AQF level.

### Assessment context

Assessment of this unit must occur in a real or simulated workplace. Such an environment must provide an opportunity for the assessee to coat centers by panning given:

- work procedures including advice on safe work practices, food safety and environmental requirements
- production schedule
- recipe/batch instructions
- centers and coating ingredients
- panning equipment
- materials handling equipment/systems
- specifications, control points and processing parameters
- services
- related work areas and communication system
- relevant OHS clothing and equipment
- sampling, and testing schedules as required
- routine preventative maintenance schedule as required
- cleaning schedule as required
- documentation and recording requirements and procedures

## Relationship to other units

Pre-requisites or equivalent:

- Communicate in the workplace
- Apply basic mathematical concepts
- Apply safe work procedures
- Apply basic quality assurance practices
- Apply basic food safety practices

Co-requisites:

- Collect, present and apply workplace information
- Implement occupational health and safety principles and procedures
- Implement the quality system
- Implement the food safety plan

Related units:

- Conduct routine tests
- Clean and sanitise equipment
- Conduct routine preventative maintenance

Where related units are required to operate a panning process in the workplace, units should be co-assessed.

## Relationship to learning resources

Main learning resource:

- Panning

Related learning resources:

- Industrial Communication B
- Occupational Health and Safety B
- Quality Assurance B
- Food Safety B (Hygiene and Sanitation B and C)
- Routine Testing A: soluble solids, particle size and viscosity
- Routine Testing B: sensory testing
- Cleaning and Sanitation



**Descriptor** This is a specialist unit that has been developed for the confectionery sector. It covers the principles, equipment and procedures used to make chocolate.

**Range of variables**

The range of variables provides further advice to interpret the scope and context of this unit of competence. It assumes:

- Work is carried out in accordance with company procedures, licensing requirements, legislative requirements and industrial awards and agreements
- Workplace information can include Standard Operating Procedures (SOPs), specifications, production schedules and batch/recipe instructions
- Confirming equipment status involves checking that hygiene and sanitation standards are met, all safety guards are in place and equipment is operational
- Typical equipment may include continuous or batch mixers/kneaders, pre-refiners, refiners and conches (or refiner-conches)
- Chocolate includes both real and compound chocolate
- Services may include power, steam, compressed and instrumentation air, water
- Monitoring the process may involve the use of production data such as performance control charts
- Process set-up, operation and monitoring functions may be manual or involve the use of a process control system
- Control points refer to those key points in a work process which must be monitored and controlled. This includes food safety (critical), quality and regulatory control points as well as inspection points
- Information systems may be print or screen based

Element	Performance criteria	Evidence guide – Part A
Mix ingredients	<p>Ingredients are confirmed as available and ready for use</p> <p>Mixing equipment is checked to confirm readiness for use</p> <p>The mixing/kneading process is operated according to company procedures</p>	<p>Part A of the Evidence guide identifies the knowledge to be demonstrated to confirm competence for this unit. Part B of the Evidence guide outlines how this guide is to be applied. It should be read in conjunction with the Range of variables.</p> <p><b>Demonstrated ability to:</b></p> <ul style="list-style-type: none"> <li>- access ingredients list, production schedule and other workplace information to identify production requirements</li> <li>- select, fit and use personal protective clothing and/or equipment</li> <li>- confirm supply of necessary materials and services</li> <li>- liaise with other work areas</li> <li>- confirm equipment status and condition</li> <li>- load ingredients in correct sequence into mixer/kneader and prepare mix/mass</li> <li>- set up and operate refining equipment to achieve required particle size</li> <li>- set up and operate conching equipment to achieve required moisture content, viscosity and related characteristics</li> </ul> <p><i>(cont.)</i></p>
Refine chocolate mass	<p>Refining equipment is set to meet particle size requirements</p> <p>Equipment is checked to confirm readiness for use</p> <p>The refining process is operated according to company procedures</p> <p>Refined mass meets specification</p>	

Element	Performance criteria	Evidence guide – Part A
Operate the conching process	<p>The conching process is set to meet production requirements</p> <p>The conching process is started up according to company procedures</p> <p>Control points are monitored to confirm performance is maintained within specification</p> <p>Chocolate mass meets specifications</p> <p>Equipment is monitored to confirm operating condition</p> <p>Out-of-specification product, process and equipment performance is identified, rectified and/or reported</p>	<p><i>Demonstrated ability to: (continued)</i></p> <ul style="list-style-type: none"> <li>– add ingredients/flavours according to recipe</li> <li>– monitor process control points and operating parameters. This can include: <ul style="list-style-type: none"> <li>➤ throughput into refiner</li> <li>➤ roller gap / particle size</li> <li>➤ throughput into conche</li> <li>➤ ingredient addition in conche</li> <li>➤ temperature</li> <li>➤ amperage</li> <li>➤ viscosity</li> </ul> </li> <li>– monitor supply and flow of materials to and from the process</li> <li>– take corrective action in response to out-of-specification results or non-compliance</li> <li>– follow workplace procedures for reworking out-of-specification product</li> <li>– conduct product or batch change-overs in accordance with production plan</li> <li>– report and/or record corrective action as required</li> </ul>
Shut down the chocolate making process	<p>The process is shut down according to company procedures</p> <p>Waste is collected, treated and disposed or recycled according to company procedures</p>	<ul style="list-style-type: none"> <li>– sort, collect, treat, recycle or dispose of waste</li> <li>– shut down equipment in response to an emergency situation</li> <li>– shut down equipment in response to routine shut down requirements</li> <li>– prepare equipment for cleaning</li> <li>– maintain work area to meet housekeeping standards</li> <li>– maintain required production records</li> </ul>
Record information	<p>Workplace information is recorded in the appropriate format</p>	<p>May include the ability to:</p> <ul style="list-style-type: none"> <li>– clean and sanitise equipment</li> <li>– take samples and conduct test</li> <li>– conduct routine maintenance</li> </ul> <p><b>Underpinning knowledge:</b></p> <ul style="list-style-type: none"> <li>– purpose and basic principles of chocolate making. This includes: <ul style="list-style-type: none"> <li>➤ changes which occur to ingredients at each stage of the process</li> <li>➤ purpose of pre-refining, refining and conching</li> <li>➤ phases of the conching stage</li> </ul> </li> <li>– stages and changes that occur during refining and conching</li> <li>– effect of process stages on end product</li> <li>– process specifications, procedures and operating parameters</li> <li>– quality characteristics of chocolate</li> <li>– effect of raw materials on process and end product</li> <li>– equipment components, purpose and principles of operation</li> </ul> <p><i>(cont.)</i></p>

Element	Performance criteria	Evidence guide – Part A
		<p><i>Underpinning knowledge: (continued)</i></p> <ul style="list-style-type: none"> <li>– basic understanding of process control system where relevant</li> <li>– services used</li> <li>– significance and method of monitoring control points within the process</li> <li>– common causes of variation and corrective action required</li> <li>– rework requirements and procedures</li> <li>– OHS hazards and controls</li> <li>– lock out and tag out procedures</li> <li>– environmental issues and controls</li> <li>– procedures and responsibility for reporting problems</li> <li>– shut down and cleaning requirements associated with changeovers and types of shut downs</li> <li>– waste handling requirements and procedures</li> <li>– recording requirements and procedures</li> </ul> <p>May include:</p> <ul style="list-style-type: none"> <li>– cleaning and sanitation procedures</li> <li>– sampling and testing procedures</li> <li>– routine maintenance procedures</li> </ul>

## Evidence guide – Part B

### Assessment guide

- Assessment must take account of the food industry's endorsed assessment guidelines and may use the non-endorsed *Assessment Framework for the Food and Beverage Processing Industry NFITC June 1995*.
- The competencies described in this unit need to be performed over time and events, under normal workplace conditions, having due regard for the key assessment principles of validity, reliability, fairness and flexibility.
- Assessment should be structured on whole of work activities giving emphasis to confirming that the assessee can achieve the workplace outcomes described in the Performance criteria, including demonstration of the underpinning knowledge and skills contained in the Evidence guide.
- The equipment used should be the actual items described in the Range of variables and Assessment context.
- The procedures and documentation should be those typically used in a workplace. Compliance with statutory occupational health and safety, food safety, hygiene and environmental requirements relevant to the food processing industry should be emphasised.
- Assessment should not require a higher level of communication competency than that specified in the core competencies for the particular AQF level.
- Assessment should reinforce the integration of the key competencies and the food industry's core competencies for the particular AQF level.

### Assessment context

Assessment of this unit must occur in a real or simulated workplace. Such an environment must provide an opportunity for the assessee to produce chocolate given:

- work procedures including advice on safe work practices, food safety and environmental requirements
- production schedule

- recipe/batch instructions
- chocolate ingredients as specified by recipe
- equipment.. This may include mixers, pre-refiners, refiners and conches
- materials handling equipment/systems
- specifications, control points and processing parameters
- services
- related work areas and communication system
- relevant OHS clothing and equipment
- sampling, and testing schedules as required
- routine preventative maintenance schedule as required
- cleaning schedule as required
- documentation and recording requirements and procedures

### **Relationship to other units**

Pre-requisites or equivalent:

- Communicate in the workplace
- Apply basic mathematical concepts
- Apply safe work procedures
- Apply basic quality assurance practices
- Apply basic food safety practices

Co-requisites:

- Collect, present and apply workplace information
- Implement occupational health and safety principles and procedures
- Implement the quality system
- Implement the food safety plan

Related units:

- Conduct routine tests
- Apply sampling techniques
- Clean and sanitise equipment
- Conduct routine preventative maintenance

Where related units are required to chocolate making in the workplace, units should be co-assessed.

### **Relationship to learning resources**

Main learning resource:

- Chocolate Making

Related learning resources:

- Industrial Communication B
- Occupational Health and Safety B
- Quality Assurance B
- Food Safety B (Hygiene and Sanitation B and C)
- Routine Testing A: soluble solids, particle size and viscosity
- Routine Testing B: sensory testing
- Cleaning and Sanitation

**Descriptor** This is a specialist unit that applies to both the confectionery and biscuit sectors. It covers the principles, equipment and procedures used to temper chocolate.

**Range of variables**

The range of variables provides further advice to interpret the scope and context of this unit of competence. It assumes:

- Work is carried out in accordance with company procedures, licensing requirements, legislative requirements and industrial awards and agreements
- Workplace information can include Standard Operating Procedures (SOPs), specifications, production schedules and batch/recipe instructions
- Chocolate may be tempered manually using a fork or scaper or by using automated tempering equipment
- Typical equipment for an automated process includes pump, depositor head, nozzle/injection plate, moulds, vibrators and shakers, cooling tunnel
- Services for an automated process may include power, fuel, compressed and instrumentation air, steam and water
- Confirming equipment status involves checking that hygiene and sanitation standards are met, all safety guards are in place and equipment is operational. It may also involve checking operation/calibration of measuring instrumentation.
- Monitoring the process may involve the use of production data such as performance control charts
- Process set up, operation and monitoring functions may be manual or involve the use of a process control system
- Control points refer to those key points in a work process which must be monitored and controlled. This includes food safety (critical), quality and regulatory control points as well as inspection points
- Information systems may be print or screen based

Element	Performance criteria	Evidence guide – Part A
Prepare the process for operation	Chocolate for tempering is confirmed and available  Services are confirmed as available and ready for operation  Equipment is checked to confirm readiness for use  The tempering process is set to meet production requirements	Part A of the Evidence guide identifies the knowledge to be demonstrated to confirm competence for this unit. Part B of the Evidence guide outlines how this guide is to be applied. It should be read in conjunction with the Range of variables.  <b>Demonstrated ability to:</b> <ul style="list-style-type: none"> <li>– access ingredients list, production schedule and other workplace information to identify production requirements</li> <li>– select, fit and use personal protective clothing and/or equipment</li> <li>– confirm supply of necessary ingredients and services</li> <li>– liaise with other work areas</li> <li>– prepare materials as required</li> <li>– confirm status and condition of tempering equipment <i>(cont.)</i></li> </ul>

Element	Performance criteria	Evidence guide – Part A
Operate and monitor the tempering process	<p>The tempering process is started up according to company procedure</p> <p>Control points are monitored to confirm performance is maintained within specification</p> <p>Equipment is monitored to confirm operating condition</p> <p>Tempered chocolate meets specification</p> <p>Out-of-specification product, process and equipment performance is identified, rectified and/or reported</p>	<p><i>Demonstrated ability to: (continued)</i></p> <ul style="list-style-type: none"> <li>– set up and operate the tempering process. This depends on the process used and may include: <ul style="list-style-type: none"> <li>➤ setting pump speeds</li> <li>➤ selecting required temperature settings</li> <li>➤ starting to temper chocolate</li> </ul> </li> <li>– monitor the process and equipment operation to identify out-of-specification results</li> <li>– take corrective action in response to out-of-specification results</li> <li>– report and/or record corrective action as required</li> <li>– sort, collect, treat, recycle or dispose of waste</li> <li>– follow workplace procedures for reworking out-of-specification product</li> <li>– conduct product or batch change-overs</li> <li>– shut down equipment in response to an emergency situation</li> </ul>
Shut down the tempering process	<p>The process is shut down according to company procedures</p> <p>Waste is collected, treated and disposed or recycled according to company procedures</p>	<ul style="list-style-type: none"> <li>– shut down equipment in response to routine shut down requirements</li> <li>– prepare equipment for cleaning</li> <li>– maintain work area to meet housekeeping standards</li> <li>– maintain required production records</li> </ul>
Record information	<p>Workplace information is recorded in the appropriate format</p>	<p>May include the ability to:</p> <ul style="list-style-type: none"> <li>– clean and sanitise equipment</li> <li>– take samples and conduct test</li> <li>– conduct routine maintenance</li> </ul> <p><b>Underpinning knowledge:</b></p> <ul style="list-style-type: none"> <li>– purpose and basic principles of tempering chocolate. This includes: <ul style="list-style-type: none"> <li>➤ a basic understanding of the crystallisation behaviour of cocoa fat</li> <li>➤ relationship between crystal forms and melting points/temperatures</li> <li>➤ process stages</li> <li>➤ importance of controlled heating, cooling and agitation</li> </ul> </li> <li>– link to related processes</li> <li>– characteristics and handling requirements of ingredients used</li> <li>– quality characteristics of tempered chocolate process specifications, procedures and operating parameters</li> <li>– equipment components, purpose and principles of operation</li> <li>– basic operating principles of process control systems where relevant <i>(cont.)</i></li> </ul>

Element	Performance criteria	Evidence guide – Part A
		<p><i>Underpinning knowledge: (continued)</i></p> <ul style="list-style-type: none"> <li>– services used</li> <li>– significance and method of monitoring control points within the process</li> <li>– temper test procedure</li> <li>– common causes of variation and corrective action required</li> <li>– rework requirements and procedures</li> <li>– OHS hazards and controls</li> <li>– lock out and tag out procedures</li> <li>– environmental issues and controls</li> <li>– shut down and cleaning requirements associated with changeovers and types of shut downs</li> <li>– waste handling requirements and procedures</li> <li>– recording requirements and procedures</li> </ul> <p>May include:</p> <ul style="list-style-type: none"> <li>– cleaning and sanitation procedures</li> <li>– sampling and testing procedures</li> <li>– routine maintenance procedures</li> </ul>

## Evidence guide – Part B

### Assessment guide

- Assessment must take account of the food industry's endorsed assessment guidelines and may use the non-endorsed *Assessment Framework for the Food and Beverage Processing Industry NFITC June 1995*.
- The competencies described in this unit need to be performed over time and events, under normal workplace conditions, having due regard for the key assessment principles of validity, reliability, fairness and flexibility.
- Assessment should be structured on whole of work activities giving emphasis to confirming that the assessee can achieve the workplace outcomes described in the Performance criteria, including demonstration of the underpinning knowledge and skills contained in the Evidence guide.
- The equipment used should be the actual items described in the Range of variables and Assessment context.
- The procedures and documentation should be those typically used in a workplace. Compliance with statutory occupational health and safety, food safety, hygiene and environmental requirements relevant to the food processing industry should be emphasised.
- Assessment should not require a higher level of communication competency than that specified in the core competencies for the particular AQF level.
- Assessment should reinforce the integration of the key competencies and the food industry's core competencies for the particular AQF level.

### **Assessment context**

Assessment of this unit must occur in a real or simulated workplace. Such an environment must provide an opportunity for the assessee to temper chocolate given:

- work procedures including advice on safe work practices, food safety and environmental requirements
- production schedule
- recipe/batch instructions
- specifications, control points and processing parameters
- chocolate to be tempered
- materials handling equipment/systems
- tempering equipment
- services
- sampling, and testing schedules as required
- tempermeter
- related work areas and communication system
- relevant OHS clothing and equipment
- routine preventative maintenance schedule as required
- cleaning schedule as required
- documentation and recording requirements and procedures

### **Relationship to other units**

Pre-requisites or equivalent:

- Communicate in the workplace
- Apply basic mathematical concepts
- Apply safe work procedures
- Apply basic quality assurance practices
- Apply basic food safety practices

Co-requisites:

- Collect, present and apply workplace information
- Implement occupational health and safety principles and procedures
- Implement the quality system
- Implement the food safety plan

Related units:

- Clean and sanitise equipment
- Conduct routine preventative maintenance

Where related units are required to temper chocolate in the workplace, units should be co-assessed.

### **Relationship to learning resources**

Main learning resource:

- Tempering

Related learning resources:

- Industrial Communication B
- Occupational Health and Safety B
- Quality Assurance B
- Food Safety B (Hygiene and Sanitation B and C)



- Cleaning and Sanitation



**Descriptor** This is a specialist unit that has been developed for the confectionery sector. It covers the principles, equipment and procedures used to manufacture moulded chocolate products.

**Range of variables**

The range of variables provides further advice to interpret the scope and context of this unit of competence. It assumes:

- Work is carried out in accordance with company procedures, licensing requirements, legislative requirements and industrial awards and agreements
- Workplace information can include Standard Operating Procedures (SOPs), specifications, production schedules and batch/recipe instructions
- Confirming equipment status involves checking that hygiene and sanitation standards are met, all safety guards are in place and equipment is operational
- Typical equipment includes pump, depositor head, nozzle/injection plate, moulds, vibrators and shakers, cooling tunnel
- Moulded chocolate products includes hollow, solid and filled products
- Ingredients may include chocolate, centers and moulds
- Coverage of moulds can be achieved by vibrating, spinning and/or inverting
- Services may include power, steam, compressed and instrumentation air and water
- Monitoring the process may involve the use of production data such as performance control charts
- Process operation and monitoring functions may be manual or involve the use of a process control system
- Control points refer to those key points in a work process which must be monitored and controlled. This includes food safety (critical), quality and regulatory control points as well as inspection points
- Information systems may be print or screen based

Element	Performance criteria	Evidence guide – Part A
Prepare ingredients and moulds	Tempered chocolate is confirmed and available for moulding  Moulds and ingredients are conditioned as required	Part A of the Evidence guide identifies the knowledge to be demonstrated to confirm competence for this unit. Part B of the Evidence guide outlines how this guide is to be applied. It should be read in conjunction with the Range of variables.  <b>Demonstrated ability to:</b>
Prepare the process for operation	Services are confirmed as available and ready for operation  Equipment is checked to confirm readiness for use  The process is set to meet production requirements	<ul style="list-style-type: none"> <li>- access ingredients list, production schedule and other workplace information to identify production requirements</li> <li>- select, fit and use personal protective clothing and/or equipment</li> <li>- confirm supply of necessary materials and services</li> <li>- liaise with other work areas</li> <li>- condition moulds and ingredients to specified temperature</li> <li>- confirm status and condition of moulding equipment. This includes confirming availability of clean, conditioned moulds (cont.)</li> </ul>

Element	Performance criteria	Evidence guide – Part A
<p>Operate and monitor the moulding/depositing process</p>	<p>The depositing process is started up according to company procedures</p> <p>Moulds are filled to achieve required coverage</p> <p>Control points are monitored to confirm performance is maintained within specification</p> <p>Moulded chocolate products meet specification</p> <p>Equipment is monitored to confirm operating condition</p> <p>Out-of-specification product, process and equipment performance is identified, rectified and/or reported</p>	<p><i>Demonstrated ability to: (continued)</i></p> <ul style="list-style-type: none"> <li>– set up and operate the moulding/depositing process</li> <li>– monitor process control points and operating parameters. This depends on the process and may include: <ul style="list-style-type: none"> <li>➢ maintaining supply of chocolate and centers to moulding process</li> <li>➢ temperatures of chocolate, moulds, depositor head, injection plate</li> <li>➢ pump stroke settings</li> <li>➢ temperature profile of cooling tunnel</li> <li>➢ chocolate coverage</li> <li>➢ shrinkage/demoulding process</li> <li>➢ shell to filling weight ratio</li> <li>➢ appearance</li> </ul> </li> <li>– monitor supply and flow of materials to and from the process</li> <li>– take corrective action in response to out-of-specification results or non-compliance</li> <li>– report and/or record corrective action as required</li> <li>– sort, collect, treat, recycle or dispose of waste</li> </ul>
<p>Shut down the process</p>	<p>The process is shut down according to company procedures</p> <p>Waste is collected, treated and disposed or recycled according to company procedures</p>	<ul style="list-style-type: none"> <li>– follow workplace procedures for reworking out-of-specification product</li> <li>– conduct product or batch change-overs in accordance with production plan</li> <li>– shut down equipment in response to an emergency situation</li> <li>– shut down equipment in response to routine shut down requirements</li> <li>– prepare equipment for cleaning</li> </ul>
<p>Record information</p>	<p>Workplace information is recorded in the appropriate format</p>	<ul style="list-style-type: none"> <li>– maintain work area to meet housekeeping standards</li> <li>– maintain required production records</li> </ul> <p>May include the ability to:</p> <ul style="list-style-type: none"> <li>– clean and sanitise equipment</li> <li>– take samples and conduct test</li> <li>– conduct routine maintenance</li> </ul> <p><b>Underpinning knowledge:</b></p> <ul style="list-style-type: none"> <li>– purpose and basic principles of chocolate moulding. This includes: <ul style="list-style-type: none"> <li>– ingredients used and condition required</li> <li>– process stages</li> <li>– link to related processes</li> <li>– characteristics, handling and preparation requirements of ingredients used</li> <li>– process specifications, procedures and operating parameters</li> <li>– quality characteristics of moulded products</li> <li>– equipment components, purpose and principles of operation</li> </ul> </li> </ul> <p><i>(cont.)</i></p>

Element	Performance criteria	Evidence guide – Part A
		<p><i>Underpinning knowledge: (continued)</i></p> <ul style="list-style-type: none"> <li>– basic operating principles of process control systems where relevant</li> <li>– services used</li> <li>– significance and method of monitoring control points within the process</li> <li>– common causes of variation and corrective action required</li> <li>– rework requirements and procedures</li> <li>– OHS hazards and controls</li> <li>– lock out and tag out procedures</li> <li>– shut down and cleaning requirements associated with changeovers and types of shut downs</li> <li>– waste handling requirements and procedures</li> <li>– recording requirements and procedures</li> </ul> <p>May include:</p> <ul style="list-style-type: none"> <li>– cleaning and sanitation procedures</li> <li>– sampling and testing procedures</li> <li>– routine maintenance procedures</li> </ul>

## Evidence guide – Part B

### Assessment guide

- Assessment must take account of the food industry's endorsed assessment guidelines and may use the non-endorsed *Assessment Framework for the Food and Beverage Processing Industry NFITC June 1995*.
- The competencies described in this unit need to be performed over time and events, under normal workplace conditions, having due regard for the key assessment principles of validity, reliability, fairness and flexibility.
- Assessment should be structured on whole of work activities giving emphasis to confirming that the assessee can achieve the workplace outcomes described in the Performance criteria, including demonstration of the underpinning knowledge and skills contained in the Evidence guide.
- The equipment used should be the actual items described in the Range of variables and Assessment context.
- The procedures and documentation should be those typically used in a workplace. Compliance with statutory occupational health and safety, food safety, hygiene and environmental requirements relevant to the food processing industry should be emphasised.
- Assessment should not require a higher level of communication competency than that specified in the core competencies for the particular AQF level.
- Assessment should reinforce the integration of the key competencies and the food industry's core competencies for the particular AQF level.

### **Assessment context**

Assessment of this unit must occur in a real or simulated workplace. Such an environment must provide an opportunity for the assessee to produce moulded chocolate products given:

- work procedures including advice on safe work practices, food safety and environmental requirements
- production schedule
- recipe/batch instructions
- ingredients as required
- moulding equipment
- materials handling equipment/systems
- specifications, control points and processing parameters
- services
- related work areas and communication system
- relevant OHS clothing and equipment
- sampling, and testing schedules as required
- routine preventative maintenance schedule as required
- cleaning schedule as required
- documentation and recording requirements and procedures

### **Relationship to other units**

Pre-requisites or equivalent:

- Communicate in the workplace
- Apply basic mathematical concepts
- Apply safe work procedures
- Apply basic quality assurance practices
- Apply basic food safety practices
- Temper chocolate

Co-requisites:

- Collect, present and apply workplace information
- Implement occupational health and safety principles and procedures
- Implement the quality system
- Implement the food safety plan

Related units:

- Conduct routine tests
- Clean and sanitise equipment
- Conduct routine preventative maintenance

Where related units are required to produce moulded chocolates in the workplace, units should be co-assessed.

## **Relationship to learning resources**

Main learning resource:

- Moulding chocolate

Related learning resources:

- Industrial Communication B
- Occupational Health and Safety B
- Quality Assurance B
- Food Safety B (Hygiene and Sanitation B and C)
- Routine Testing A: soluble solids, particle size and viscosity
- Routine Testing B: sensory testing
- Cleaning and Sanitation
- Tempering





**Descriptor** This is a specialist unit that applies to both the confectionery and biscuit sectors. It covers the principles, equipment and procedures used to manufacture enrobed chocolate products.

**Range of variables**

The range of variables provides further advice to interpret the scope and context of this unit of competence. It assumes:

- Work is carried out in accordance with company procedures, licensing requirements, legislative requirements and industrial awards and agreements
- Workplace information can include Standard Operating Procedures (SOPs), specifications, production schedules and batch/recipe instructions
- Confirming equipment status involves checking that hygiene and sanitation standards are met, all safety guards are in place and equipment is operational
- Typical equipment includes pump, conveyor belt, reservoir tank, enrober, blowers, vibrators, detailers, roll scrapers/licking rolls and cooling tunnels
- Ingredients include tempered chocolate and centers, bars or biscuits to be covered
- Services may include power, steam, compressed and instrumentation air and water
- Monitoring the process may involve the use of production data such as performance control charts
- Process operation and monitoring functions may be manual or involve the use of a process control system
- Control points refer to those key points in a work process which must be monitored and controlled. This includes food safety (critical), quality and regulatory control points as well as inspection points
- Information systems may be print or screen based

Element	Performance criteria	Evidence guide – Part A
Prepare ingredients	Tempered chocolate is confirmed and available for enrobing  Centers/biscuits are conditioned as required	Part A of the Evidence guide identifies the knowledge to be demonstrated to confirm competence for this unit. Part B of the Evidence guide outlines how this guide is to be applied. It should be read in conjunction with the Range of variables.
Prepare the process for operation	Services are confirmed as available and ready for operation  Equipment is checked to confirm readiness for use  The enrobing process is set to meet production requirements	<b>Demonstrated ability to:</b> <ul style="list-style-type: none"> <li>– access ingredients list, production schedule and other workplace information to identify production requirements</li> <li>– select, fit and use personal protective clothing and/or equipment</li> <li>– confirm supply of the required type of tempered chocolate and the relevant centers/biscuits are available at the correct temperature</li> <li>– liaise with other work areas</li> <li>– confirm status and condition of enrobing equipment</li> <li>– set up and operate the enrobing process <i>(cont.)</i></li> </ul>

Element	Performance criteria	Evidence guide – Part A
Operate and monitor the enrobing process	<p>The process is started up according to company procedures</p> <p>Control points are monitored to confirm performance is maintained within specification</p> <p>Enrobed products meet specification</p> <p>Equipment is monitored to confirm operating condition</p> <p>Out-of-specification product, process and equipment performance is identified, rectified and/or reported</p>	<p><i>Demonstrated ability to: (continued)</i></p> <ul style="list-style-type: none"> <li>– monitor process control points and operating parameters. This can include: <ul style="list-style-type: none"> <li>➤ maintaining supply of chocolate to the enrobing reservoir</li> <li>➤ temperatures of chocolate and pipelines</li> <li>➤ chocolate temper using a temper test</li> <li>➤ chocolate supply pump speed</li> <li>➤ blower and vibrator settings</li> <li>➤ temperature profile of cooling tunnel</li> <li>➤ chocolate coverage</li> <li>➤ product weight</li> <li>➤ appearance</li> <li>➤ cooling temperatures</li> </ul> </li> <li>– monitor supply and flow of materials to and from the process</li> <li>– take corrective action in response to out-of-specification results or non-compliance</li> <li>– follow workplace procedures for reworking out-of-specification product</li> </ul>
Shut down the enrobing process	<p>The enrobing process is shut down according to company procedures</p> <p>Waste is collected, treated and disposed or recycled according to company procedures</p>	<ul style="list-style-type: none"> <li>– conduct product or batch change-overs in accordance with production plan</li> <li>– report and/or record corrective action as required</li> <li>– sort, collect, treat, recycle or dispose of waste</li> <li>– shut down equipment in response to an emergency situation</li> <li>– shut down equipment in response to routine</li> </ul>

<p>Record information</p>	<p>Workplace information is recorded in the appropriate format</p>	<p>shut down requirements</p> <ul style="list-style-type: none"> <li>– prepare equipment for cleaning</li> <li>– maintain work area to meet housekeeping standards</li> <li>– maintain required production records</li> </ul> <p>May include the ability to:</p> <ul style="list-style-type: none"> <li>– clean and sanitise equipment</li> <li>– take samples and conduct test</li> <li>– conduct routine maintenance</li> </ul> <p><b>Underpinning knowledge:</b></p> <ul style="list-style-type: none"> <li>– purpose and basic principles of chocolate enrobing. This includes: <ul style="list-style-type: none"> <li>➤ effect of chocolate viscosity on enrobing</li> <li>➤ process stages</li> </ul> </li> <li>– link to related processes</li> <li>– characteristics and handling/preparation requirements of ingredients used</li> <li>– process specifications, procedures and operating parameters</li> <li>– quality characteristics of enrobed products</li> <li>– equipment components, purpose and principles of operation</li> <li>– basic understanding of process control system where relevant</li> <li>– services used</li> </ul> <p><i>(cont.)</i></p>
---------------------------	--	---

Element	Performance criteria	Evidence guide – Part A
		<p><i>Underpinning knowledge: (continued)</i></p> <ul style="list-style-type: none"> <li>– significance and method of monitoring control points within the process</li> <li>– common causes of variation and corrective action required</li> <li>– rework requirements and procedures</li> <li>– OHS hazards and controls</li> <li>– lock out and tag out procedures</li> <li>– shut down and cleaning requirements associated with changeovers and types of shut downs</li> <li>– waste handling requirements and procedures</li> <li>– recording requirements and procedures</li> </ul> <p>May include:</p> <ul style="list-style-type: none"> <li>– cleaning and sanitation procedures</li> <li>– sampling and testing procedures</li> <li>– routine maintenance procedures</li> </ul>

## Evidence guide – Part B

### Assessment guide

- Assessment must take account of the food industry’s endorsed assessment guidelines and may use the non-endorsed *Assessment Framework for the Food and Beverage Processing Industry NFITC June 1995*.
- The competencies described in this unit need to be performed over time and events, under normal workplace conditions, having due regard for the key assessment principles of validity, reliability, fairness and flexibility.
- Assessment should be structured on whole of work activities giving emphasis to confirming that the assessee can achieve the workplace outcomes described in the Performance criteria, including demonstration of the underpinning knowledge and skills contained in the Evidence guide.
- The equipment used should be the actual items described in the Range of variables and Assessment context.
- The procedures and documentation should be those typically used in a workplace. Compliance with statutory occupational health and safety, food safety, hygiene and environmental requirements relevant to the food processing industry should be emphasised.
- Assessment should not require a higher level of communication competency than that specified in the core competencies for the particular AQF level.
- Assessment should reinforce the integration of the key competencies and the food industry’s core competencies for the particular AQF level.

### Assessment context

Assessment of this unit must occur in a real or simulated workplace. Such an environment must provide an opportunity for the assessee to produce enrobed products given:

- work procedures including advice on safe work practices, food safety and environmental requirements
- production schedule
- recipe/batch instructions
- tempered chocolate and conditioned centers to be enrobed

- enrobing equipment including enrober and cooling equipment
- materials handling equipment/systems
- specifications, control points and processing parameters
- services
- related work areas and communication system
- relevant OHS clothing and equipment
- sampling, and testing schedules as required
- routine preventative maintenance schedule as required
- cleaning schedule as required
- documentation and recording requirements and procedures

### **Relationship to other units**

Pre-requisites or equivalent:

- Communicate in the workplace
- Apply basic mathematical concepts
- Apply safe work procedures
- Apply basic quality assurance practices
- Apply basic food safety practices
- Temper chocolate

Co-requisites:

- Collect, present and apply workplace information
- Implement occupational health and safety principles and procedures
- Implement the quality system
- Implement the food safety plan

Related units:

- Conduct routine tests
- Clean and sanitise equipment
- Conduct routine preventative maintenance

Where related units are required to produce enrobed products in the workplace, units should be co-assessed.

### **Relationship to learning resources**

Main learning resource:

- Enrobing

Related learning resources:

- Industrial Communication B
- Occupational Health and Safety B
- Quality Assurance B
- Food Safety B (Hygiene and Sanitation B and C)
- Routine Testing A: soluble solids, particle size and viscosity
- Routine Testing B: sensory testing
- Cleaning and Sanitation
- Tempering

<b>FDf CONDF3 A</b>	<b>Diagnose and respond to product and process faults</b>
---------------------	---

**Descriptor** This is a specialist unit that has been developed for the confectionery sector. It builds on the problem solving skills developed in operational units at AQF 2 and provides technical competencies to support problem solving at AQF 3.

**Range of variables**

This range of variables provides further advice to interpret the scope and context of this unit of competence. It assumes that:

- Work is carried out in accordance with company procedures, licensing requirements, legislative requirements and industrial awards and agreements
- Advice on work procedures, specifications and process parameters are available and meets legislative requirements
- Information systems may be print or screen based
- Co-ordination, planning and troubleshooting is undertaken with assistance from others
- Raw materials include those used to manufacture both chocolate and sugar confectionery. They include cocoa products, sugar, glucose syrup, starch, fats and emulsifiers, milk products, gelling agents or stabilisers
- Typical process parameters include temperature, time, sequence, pressure, holding/curing time, flow rate
- Typical reactions include crystallisation, inversion, browning, caramelisation, gelatinisation, emulsification
- Environmental factors may include dew point, relative humidity
- Where recurrence of a problem cannot be prevented, procedures should be established to minimise the likelihood of recurrence and to identify any further incidents

Element	Performance criteria	Evidence guide – Part A
Identify and confirm raw material characteristics	Characteristics of raw materials are identified  Incidents of non-conformance are analysed to determine causes relating to raw materials	Part A of the Evidence guide identifies the knowledge to be demonstrated to confirm competence for this unit. Part B of the Evidence guide outlines how this guide is to be applied. It should be read in conjunction with the Range of variables.
Identify and respond to non-conforming product and processes	Process parameters and reactions which occur during processing are monitored  Non-conformance is analysed to determine causes relating to processing and/or storage faults  Corrective action is taken to remove non-conforming product and prevent recurrence in according to company procedures	<b>Demonstrated ability to:</b> <ul style="list-style-type: none"> <li>– access workplace information relating to troubleshooting</li> <li>– use relevant observation and/or test methods to confirm raw material characteristics</li> <li>– identify the purpose/role of each ingredient/material used</li> <li>– remove/isolate and report non-conforming materials</li> <li>– determine likely causes of non-conformance of raw materials</li> <li>– determine likely causes of non-conformance relating to the process and/or storage conditions</li> </ul>

Element	Performance criteria	Evidence guide – Part A
Identify and respond to non-conforming product and processes (cont)	Corrective action is reported and/or recorded in the required format	<p><b>Underpinning knowledge:</b></p> <ul style="list-style-type: none"> <li>– basic composition and function of each main ingredient used. This includes: <ul style="list-style-type: none"> <li>➤ form/grade supplied</li> <li>➤ behaviour/changes occurring during processing</li> <li>➤ role and purpose</li> </ul> </li> <li>– effect of typical reactions on confectionery manufacture. This may include: <ul style="list-style-type: none"> <li>➤ solutions and suspensions</li> <li>➤ crystallisation</li> <li>➤ inversion</li> <li>➤ browning and caramelisation</li> <li>➤ gelatinisation</li> <li>➤ emulsification</li> </ul> </li> <li>– process parameters and their effect</li> <li>– key variables which can affect the process</li> <li>– problem solving techniques</li> <li>– procedures for isolating or quarantining non-conforming product</li> <li>– environmental factors which can influence product shelf life</li> </ul>

## Evidence guide – Part B

### Assessment guide

- Assessment must take account of the food industry's endorsed assessment guidelines and may use the non-endorsed *Assessment Framework for the Food and Beverage Processing Industry NFITC June 1995*.
- The competencies described in this unit need to be performed over time and events, under normal workplace conditions, having due regard for the key assessment principles of validity, reliability, fairness and flexibility.
- Assessment should be structured on whole of work activities giving emphasis to confirming that the assessee can achieve the workplace outcomes described in the Performance criteria, including demonstration of the underpinning knowledge and skills contained in the Evidence guide.
- The equipment used should be the actual items described in the Range of variables and Assessment context.
- The procedures and documentation should be those typically used in a workplace. Compliance with statutory occupational health and safety, food safety, hygiene and environmental requirements relevant to the food processing industry should be emphasised.
- Assessment should not require a higher level of communication competency than that specified in the core competencies for the particular AQF level.
- Assessment should reinforce the integration of the key competencies and the food industry's core competencies for the particular AQF level.

### Assessment context

Assessment of this unit must occur in a real or simulated workplace. Such an environment must provide an opportunity for the assessee to diagnose process problems within level of responsibility given:

- work procedures including advice on safe work practices, food safety and environmental requirements for processes within the system
- company policies and workplace systems including human resources, OHS, quality, food safety and environmental management
- production schedule

- recipe/batch instructions
- raw materials specifications
- sampling and testing schedules and procedures
- control points and processing parameters for processes within the production system
- production system equipment
- personnel operating the system
- services
- related work areas and communication system
- relevant OHS clothing and equipment
- cleaning, calibration and maintenance schedule
- troubleshooting advice where available
- documentation and record keeping system
- planning, resources management and training arrangements

### **Relationship to other units**

Pre-requisites or equivalent:

- Collect, present and apply workplace information
- Implement occupational health and safety principles and procedures
- Implement the quality system
- Implement the food safety plan

Co-requisites:

- Analyse and convey workplace information
- Monitor the implementation of occupational health and safety
- Monitor the implementation of the quality system
- Monitor the implement the food safety plan

### **Relationship to learning resources**

Main learning resource:

- Raw Materials
- Principles of Confectionery Manufacture

Related learning resources:

- Materials handling C
- Food Safety C (Hygiene and Sanitation D)
- Industrial Communication C
- Quality Assurance C
- Work Team Communication







**FDF CONOS3 A****Operate a system (Confectionery)****Descriptor**

This is a specialist unit that has been customised for the confectionery sector. It covers the preparation and operation of a production or packaging system.

A system typically describes the operation of an entire process which may be comprised of a number of sub-systems. System operation requires higher level planning and problem solving skills than are necessary when operating an individual sub-system or piece of equipment. It can also involve facilitating the work of others.

**Range of variables**

The range of variables provides further advice to interpret the scope and context of this unit of competence. It assumes:

- Work is carried out in accordance with company procedures, licensing requirements, legislative requirements and industrial awards and agreements
- System operation typically involves planning, co-ordination and troubleshooting within their level of authority
- Control points refer to those key points in a work process which must be monitored and controlled. This includes food safety (critical), quality and regulatory control points as well as inspection points
- Information systems may be print or screen based
- Co-ordination, planning and troubleshooting is undertaken with assistance from others
- Workplace systems are in place to support production and packaging processes. These include quality, food safety, occupational health and safety and environmental management

Element	Performance criteria	Evidence guide – Part A
<p>Prepare the system for operation</p>	<p>Supply of materials is confirmed to meet production/packaging requirements</p> <p>Work area is prepared for operation</p> <p>Services are confirmed as available and ready for operation</p> <p>Equipment is checked to confirm readiness for use</p> <p>The system is set to meet specifications</p>	<p>Part A of the Evidence guide identifies the skills and knowledge to be demonstrated to confirm competence for this unit. Part B of the Evidence guide outlines how this guide is to be applied. Both parts should be read in conjunction with the Range of variables.</p> <p><b>Demonstrated ability to:</b></p> <ul style="list-style-type: none"> <li>– liaise with relevant work areas to confirm or secure necessary materials, services, equipment and labour to meet production requirements</li> <li>– confirm that all equipment within the system meets hygiene and sanitation standards, all safety guards are in place and equipment is ready for operation</li> <li>– confirm that materials and packaging consumables have been cleared for use</li> <li>– monitor implementation of set-up and start up procedures. This may involve monitoring the use of checksheets by others</li> <li>– monitor observance of work procedures and systems</li> <li>– monitor materials flow and work-in-progress through the system</li> </ul> <p><i>(cont.)</i></p>

Element	Performance criteria	Evidence guide – Part A
Operate and monitor the system	<p>The system is started up according to company procedures</p> <p>Control points are monitored to confirm performance is maintained within specification</p> <p>Equipment is monitored to confirm operating condition</p> <p>System outputs meet specification</p> <p>Out-of-specification product, process and equipment performance is identified, rectified and/or reported</p>	<p><i>Demonstrated ability to: (continued)</i></p> <ul style="list-style-type: none"> <li>– confirm that the system operates within specified parameters and control points are monitored</li> <li>– determine responses to out-of-specification results or non-conformance within level of responsibility</li> <li>– co-ordinate batch/product changeovers</li> <li>– communicate information effectively</li> <li>– plan maintenance and cleaning procedures to minimise disruption</li> <li>– monitor operating efficiencies of the system and investigate, resolve and/or report problems</li> <li>– review and maintain procedures to support system improvements</li> </ul> <p><b>Underpinning knowledge:</b></p> <ul style="list-style-type: none"> <li>– purpose and principles of the system</li> <li>– equipment purpose and operation including an understanding of process control systems where used</li> </ul>
Shut down the system	<p>The system is shut down according to company procedures</p> <p>Equipment is cleaned and maintained to meet cleaning schedule and procedural requirements</p> <p>Waste generated by both the process and cleaning procedures is collected, treated and disposed or recycled according to company procedures</p>	<ul style="list-style-type: none"> <li>– technical knowledge of product/packaging characteristics and processing/packaging requirements</li> <li>– codes and legislation relating to product and packaging requirements</li> <li>– equipment calibration schedule and responsibilities</li> <li>– type and purpose of sampling and testing conducted</li> <li>– related work areas and departments</li> <li>– relevant procedures, specifications and operating parameters</li> </ul>
Contribute to continuous improvement of the system	<p>Quality of process outputs is assessed against specifications</p> <p>Opportunities for improvement are identified and investigated</p> <p>Proposals for improvements are developed and implemented within company planning arrangements and according to company procedures</p>	<ul style="list-style-type: none"> <li>– relevant systems and legislative responsibilities in areas such as human resources, food safety, quality, occupational health and safety and environmental management</li> <li>– industrial awards and agreements relating to system operation</li> <li>– hazards, risks, controls and methods for monitoring processes within the system</li> <li>– maintenance and cleaning requirements of equipment in system</li> <li>– process improvement procedures and related consultative arrangements</li> <li>– troubleshooting procedures and problem solving techniques</li> </ul>
Record information	Workplace information is reported and recorded in the appropriate format	<ul style="list-style-type: none"> <li>– recording and reporting requirements</li> </ul>

## Evidence guide – Part B

### Assessment guide

- Assessment must take account of the food industry's endorsed assessment guidelines and may use the non-endorsed *Assessment Framework for the Food and Beverage Processing Industry NFITC June 1995*.
- The competencies described in this unit need to be performed over time and events, under normal workplace conditions, having due regard for the key assessment principles of validity, reliability, fairness and flexibility.
- Assessment should be structured on whole of work activities giving emphasis to confirming that the assessee can achieve the workplace outcomes described in the Performance criteria, including demonstration of the underpinning knowledge and skills contained in the Evidence guide.
- The equipment used should be the actual items described in the Range of variables and Assessment context.
- The procedures and documentation should be those typically used in a workplace. Compliance with statutory occupational health and safety, food safety, hygiene and environmental requirements relevant to the food processing industry should be emphasised.
- Assessment should reinforce the integration of the key competencies and the food industry's core competencies for the particular AQF level.
- Assessment should not require a higher level of communication competency than that specified in the core competencies for the particular AQF level.
- Assessment should not require a higher level of communication competency than that specified in the core competencies for the particular AQF level.

### Assessment context

Assessment of this unit must occur in a real or simulated workplace. Such an environment must provide an opportunity for the assessee to prepare and operate a production or packaging system given:

- work procedures including advice on safe work practices, food safety and environmental requirements for processes within the system
- company policies and workplace systems including human resources, OHS, quality, food safety and environmental management
- production/packaging schedule
- specifications, control points and processing parameters
- production/packaging system equipment
- personnel operating the system
- services
- related work areas and communication system
- relevant OHS clothing and equipment
- cleaning, calibration and maintenance schedules as required
- sampling and testing schedules as required
- troubleshooting advice where available
- documentation and record keeping system
- planning, resources management and training arrangements

### **Relationship to other units**

Pre-requisites or equivalent:

- Collect, present and apply workplace information
- Implement occupational health and safety principles and procedures
- Implement the quality system
- Implement the food safety plan

Co-requisites:

- Analyse and convey workplace information
- Monitor the implementation of occupational health and safety
- Monitor the implementation of the quality system
- Monitor the implement the food safety plan

Related units:

- Facilitate Teams

Where related units form an integral part of system operation in the workplace, these units should be co-assessed.

## **Relationship to learning resources**

Main learning resource:

- There are no specific learning resources currently available for this sector of the food processing industry

Related learning resources:

- Industrial Communication C
- Quality Assurance C
- Occupational Health and Safety C
- Food Safety C (Hygiene and Sanitation D)
- Work Team Communication