AUSTRALIAN NATIONAL TRAINING AUTHORITY

Food Processing Industry

FDF 98

Fruit & Vegetables Competency Units

NATIONAL FOOD INDUSTRY TRAINING COUNCIL

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GPO Box 5347BB
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Telephone: +61 3 9630 9836 or 9630 9837
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INDEX TO: Fruit and Vegetable Units

FDF FVDC1 A	Locate industry and company products and processes (Fruit and Vegetable)

Descriptor This is a specialist unit that has been customised for the fruit and vegetable 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

– Fruit and vegetable processes may include materials inspection and preparation, homogenising, heat treatment, retorting, evaporating, drying and freezing

– Stages refer to functions or activities in the production, packaging and despatch processes.

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. **Demonstrated ability to:** – access workplace information to identify materials and production requirements – identify and locate materials used in the work process – identify and locate production and/or packaging stages and process in the workplace – comply with OHS and food safety requirements when moving around the workplace **Underpinning knowledge:** – range of final products produced by the company – quality requirements/specifications for final products – consequences of product failing to meet quality requirements – stages and processes used to manufacture and package product – basic purpose of equipment used at each stage – outputs at each stage of the process – raw materials/consumables used *(cont)*
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	

Element	Performance criteria	Evidence guide – Part A
		Underpinning knowledge: (continued) – preparation, packaging, handling and storage of finished product prior to sale – OHS, quality, food safety and environmental requirements relating to own work

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 fruit and vegetable 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 Fruit and Vegetable Manufacture

Related learning resources:

– Industrial Communication A

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

FDF FVRM1 A	Prepare raw materials for pre-processing

Descriptor This is a specialist unit that has been developed for the fruit and vegetable sector. It covers basic preparation such as inspecting, cleaning, sorting and grading.

Range of variables

This range of variables provides further advice to interpret the scope and context 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
- Work is typically conducted in a packing work area
- Cleaning methods may include wet and dry cleaning
- Conveying equipment/systems may include mechanical, air or vacuum conveyors, flumes and pumped systems
- Inspection is typically by visual inspection
- Information systems may be print or screen based

Element	Performance criteria	Evidence guide – Part A
Inspect materials for use in production	Type and quality of materials are confirmed Conveying equipment/system is used to transfer materials to required locations Materials are inspected to confirm compliance with quality requirements Non-conforming materials are identified and removed	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. **Demonstrated ability to:** – access workplace information to identify materials specification/quality requirements – operate conveying equipment/systems as required – confirm that materials meet specification Method used can include: ➢ confirming type of materials ➢ confirming that materials have been cleaned – sort, size and grade to meet specifications – identify out-of-specification results or non-compliance and take appropriate corrective action

Grade and sort materials	Materials are sorted and graded to meet production requirements Waste is collected treated and/or disposed of according to company procedures	– sort, collect, treat, recycle or dispose of waste – maintain work area and equipment to meet housekeeping standards (cont.)

Element	Performance criteria	Evidence guide – Part A
		Underpinning knowledge: – link between this and related processes – materials specifications and quality requirements – methods used to convey materials. This includes purpose and basic principles of conveying equipment and systems – methods used to clean materials. This includes both wet and dry cleaning methods and reasons for selection – consequences of inadequate cleaning – typical types of non-conformance for materials handled – sizing and grading criteria and procedure – materials handling requirements as required – OHS hazards and controls – environmental issues and controls – procedures and responsibility for reporting non-conformance

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 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
- production advice
- conveying equipment./systems
- sizing and grading equipment/instrumentation
- cleaning system/equipment
- work procedures relating to inspection, conveying, grading and sizing and cleaning
- services as required
- material safety data sheets where appropriate
- cleaning schedule
- 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 manual handling equipment
- Shift materials safely

Relationship to learning resources

Main learning resource:

- Product Preparation A

Related learning resources

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

FDF ZZOD2 A	Operate a drying process
Descriptor	This is a specialist unit that applies to both the fruit and vegetable and dairy sectors. It covers the preparation and operation of a drying 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
- Drying methods for fruit and vegetables may include sun drying, hot air drying and freeze drying
- Drying methods for dairy may include conical and box type drying
- Drying equipment may include drying chambers, atomisers, heaters, coolers, air filters, fans, recovery cyclones and conveyors
- Materials may include product to be dried and additives or drying agents as required, consistent with the provisions of the Australian Food Safety Code
- Services 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
- Work may involve exposure to chemicals and other hazardous substances

Element	Performance criteria	Evidence guide – Part A
Prepare the drying process for operation	Materials are confirmed and available to meet production/recipe requirements Services are confirmed as available and ready for operation Equipment is checked to confirm readiness for use The drying process is set to meet production requirements	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. **Demonstrated ability to:** – access workplace information to identify production requirements – select, fit and use personal protective clothing and/or equipment – confirm supply of necessary materials and services – liaise with other work areas *(cont.)*

Element	Performance criteria	Evidence guide – Part A
Operate and monitor the drying process	The drying process is started up according to company procedures Control points are monitored to confirm performance is maintained within specification Dried product meets specification Equipment is monitored to confirm operating condition Out-of-specification product, process and equipment performance is identified, rectified and/or reported Waste is monitored and cleared according to company procedures	– prepare materials as required – confirm equipment status and condition. This may include checking belts, chains, screens seals and valves, and filters for damage – set up and start up the process. – monitor the process and equipment operation to identify out-of-specification results or non-compliance. This can involve monitoring: ➢ temperatures ➢ moisture content ➢ air flow ➢ throughput ➢ time/speed ➢ pressure/vacuum ➢ relevant product characteristics – monitor supply and flow of materials to and from the process – take corrective action in response to out-of-specification results or non-compliance – conduct product/batch changeovers – report and/or record corrective action as required – sort, collect, treat, recycle or dispose of waste – shut down equipment in response to an emergency situation – shut down equipment in response to routine shut down requirements – prepare equipment for cleaning – record workplace information – maintain work area to meet housekeeping standards May include the ability to: – clean and sanitise equipment – take samples and conduct test – carry out routine maintenance – identify, rectify and/or report environmental non-compliance **Underpinning knowledge:** – purpose and basic principles of drying – link to related processes – stages and changes which occur during drying – effect of process stages on end product – quality characteristics and uses of dried product – materials preparation requirements and effect of variation on the process – main methods used to dry materials – key variables in drying including temperature, air velocity, humidity, pressure *(cont)*
Shut down the drying process	The drying process is shut-down according to company procedures Waste is collected, treated and disposed or recycled according to company procedures	
Record information	Workplace information is recorded in the appropriate format	

Element	Performance criteria	Evidence guide – Part A
		– microbiological considerations in drying – process specifications, procedures and operating parameters – equipment and instrumentation components, purpose and operation – basic operating principles of process control systems where relevant – services used – significance and method of monitoring control points within the process – common causes of variation and corrective action required – method/s used to calculate yield – OHS hazards and controls – lock out and tag out procedures – procedures and responsibility for reporting problems – environmental issues and controls – shut down and cleaning requirements associated with changeovers and types of shut downs – waste handling requirements and procedures – recording requirements and procedures May include: – cleaning and sanitation procedures – sampling and testing procedures – routine maintenance procedures – environmental management procedures

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 drying 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
- drying equipment
- services
- materials to be dried
- relevant OHS clothing and equipment
- related work areas and communication system
- material safety data sheets where appropriate
- 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
- Implement environmental procedures

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

Relationship to learning resources

Main learning resource:

- Drying (Fruit and Vegetable)
- Drying (Dairy)

Related learning resources:

- Industrial Communication B
- Occupational Health and Safety B
- Quality Assurance B
- Food Safety B (Hygiene and Sanitation B & C)
- Routine Testing (Fruit and Vegetable)
- Routine Testing (Dairy)
- Routine Sampling (Dairy)
- Cleaning and Sanitation

FDF ZZEP2 A	Operate an evaporation process

Descriptor This is a specialist unit that applies to both the fruit and vegetable and dairy sectors. It covers the preparation and operation of an evaporation 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
- Evaporation equipment may include heat exchangers, vapour separators, vapour condensers and vacuum units. Evaporators may have single or multiple stages and effects
- 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
- Services may include power, steam, water, vacuum and compressed and instrumentation air
- 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 evaporation process for operation	Materials are confirmed and available to meet production/recipe requirements Services are confirmed as available and ready for operation Equipment is checked to confirm readiness for use The evaporation process is set to meet production requirements	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. **Demonstrated ability to:** – access workplace information to identify production requirements – select, fit and use personal protective clothing and/or equipment – confirm supply of necessary materials and services – liaise with other work areas – prepare materials as required – confirm equipment status and condition – set up and start up the process *(cont.)*

Element	Performance criteria	Evidence guide – Part A
Operate and monitor the evaporation process	The evaporation process is started up according to company procedures Control points are monitored to confirm performance is maintained within specification Evaporated product meets specifications Equipment is monitored to confirm operating condition Out-of-specification product, process and equipment performance is identified, rectified and/or reported	*Demonstrated ability to: (continued)* – monitor the process and equipment operation to identify out-of-specification results or non-compliance. This can involve monitoring: ➢ temperatures ➢ vacuum ➢ motor amperage ➢ condensate flow ➢ steam flow and pressure ➢ throughput ➢ time/speed ➢ evaporated product characteristics – monitor supply and flow of materials to and from the process – take corrective action in response to out-of-specification results or non-compliance – conduct product/batch changeovers – report and/or record corrective action as required – sort, collect, treat, recycle or dispose of waste – shut down equipment in response to an emergency situation – shut down equipment in response to routine shut down requirements – prepare equipment for cleaning – record workplace information – maintain work area to meet housekeeping standards May include the ability to: – clean and sanitise equipment – take samples and conduct test – carry out routine maintenance **Underpinning knowledge:** – purpose and basic principles of evaporation – link to related processes – stages and changes which occur during evaporation – effect of raw materials on process outcomes – quality characteristics and uses of evaporated product – relationship between boiling point and pressure in the evaporation process – microbiological considerations in evaporation – process specifications, procedures and operating parameters – equipment and instrumentation components, purpose and operation – basic operating principles of process control systems where relevant *(cont.)*
Shut down the evaporation process	The evaporation process is shut down according to company procedures Waste is collected, treated and disposed or recycled according to company procedures	
Record information	Workplace information is recorded in the appropriate format	

Element	Performance criteria	Evidence guide – Part A
		Underpinning knowledge: (continued) – services used – significance and method of monitoring control points within the process – common causes of variation and corrective action required – method/s used to calculate yield – OHS hazards and controls – lock out and tag out procedures – procedures and responsibility for reporting problems – environmental issues and controls – shut down and cleaning requirements associated with changeovers and types of shut downs – waste handling requirements and procedures – recording requirements and procedures May include: – cleaning and sanitation procedures – sampling and testing procedures – routine maintenance procedures

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 evaporation process given:

- work procedures including advice on safe work practices, food safety and environmental requirements
- production schedule, batch/recipe instructions
- material safety data sheets where appropriate
- specifications, control points and processing parameters
- evaporation equipment
- services
- materials to be evaporated
- related work areas and communication system
- sampling and testing schedules as required
- 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
- Apply sampling techniques
- Clean and sanitise equipment
- Conduct routine preventative maintenance

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

Relationship to learning resources

Main learning resource:

- Evaporation (Fruit and Vegetable)
- Evaporation (Dairy)

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 (Fruit and Vegetables)
- Routine Testing (Dairy)
- Routine Sampling (Dairy)
- Cleaning and Sanitation

FDF FVFC2 A Fill, close and inspect can seams

Descriptor This unit is a specialist unit that has been customised for the fruit and vegetable sector. It covers the filling of product into containers, hermetically sealing containers using a closer or seamer and inspecting can seams.

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
- Product preparation can include acidifying, brining or syruping, exhausting
- Product may be hot or cold filled
- Materials may include product and packaging consumables
- 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
- Services may include power, steam, water, vacuum and compressed and instrumentation air
- 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
- Can seam components include body hook, end hook, countersink, seam thickness and seam juncture
- Precision measuring instruments may include micrometers and countersink gauges
- Information systems may be print or screen based

Element	Performance criteria	Evidence guide – Part A
Prepare the filling and closing process for operation	Materials are confirmed and available to meet production, recipe and packaging requirements 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	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. **Demonstrated ability to:** – access workplace information to identify production requirements – select, fit and use personal protective clothing and/or equipment – confirm supply of necessary materials and services – liaise with other work areas – prepare materials as required – confirm equipment status and condition – set up and start up the filling process *(cont.)*

Element	Performance criteria	Evidence guide – Part A
Operate and monitor the filling process	The filling process is started up according to company procedures Control points are monitored to confirm performance is maintained within specification Filled and closed containers meet specification Equipment is monitored to confirm operating condition Out-of-specification product, process and equipment performance is identified, rectified and/or reported Waste is monitored and cleared according to company procedures	*Demonstrated ability to: (continued)* – monitor the filling process and equipment operation to identify out-of-specification results or non-compliance. This may involve monitoring temperatures, headspace and line speed – monitor supply and flow of materials to and from the process – set up and operate the closer – monitor the closer to confirm alignment and formation of the seam – check coding is correct – take corrective action in response to out-of-specification results or non-compliance – report and/or record corrective action as required – conduct product/batch changeovers – shut down equipment in response to an emergency situation – shut down equipment in response to routine shut down requirements – prepare equipment for cleaning – maintain work area to meet housekeeping standards – identify and measure parts of a double seam – report and record workplace information – sort, collect, treat, recycle or dispose of waste – maintain work area to meet housekeeping standards **Underpinning knowledge:** – purpose and basic principles of filling and closing – link to related processes – stages in the filling and closing process – methods used to prepare product for filling – purpose of hermetic sealing and types of containers suitable for use. This includes an understanding of materials and costings used in packaging – effect of process variables such as headspace and fill temperature on the process – process specifications, procedures and operating parameters – equipment and instrumentation components, purpose and operation – basic operating principles of process control systems where relevant – services used – significance and method of monitoring control points within the process – common causes of variation and corrective action required – OHS hazards and controls – lock out and tag out procedures – procedures and responsibility for reporting problems *(cont.)*
Monitor and inspect closure and seams	The closing stage is monitored to confirm that closures and seams meet specifications Seams are inspected to identify out-of-specification seams Out-of-specification process and equipment performance is identified, rectified and/or reported	
Shut down filling and closing equipment	The process is shut down Equipment is prepared for cleaning Waste is collected, treated and disposed or recycled according to company procedures	
Inspect can seams	Seam components are identified and measured Non-compliance is identified and reported	
Record information	Workplace information is recorded in the appropriate format	

Element	Performance criteria	Evidence guide – Part A
		Underpinning knowledge: (continued) – tinplate can seam components and parameters – measuring instrumentation and application to seam measurement – equipment shut down and cleaning procedures – waste handling requirements and procedures – recording requirements and procedures

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 filling process and conduct seam inspections given:

– work procedures including advice on safe work practices, food safety and environmental requirements
– production schedule, batch/recipe instructions
– material safety data sheets where appropriate
– specifications, control points and processing parameters
– filling and closing equipment
– seam measuring and testing instrumentation
– services
– materials
– related work areas and communication system
– sampling and testing schedules as required
– relevant OHS clothing and equipment
– routine preventative maintenance schedule
– cleaning schedule
– 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
– Pre-process raw materials
– Heat treatment

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

Relationship to learning resources

Main learning resource:

– Filling, Closing and Seam Inspection

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 (Fruit and Vegetable)
– Product Preparation B
– Heat Treatment

FDF FVFP2 A	Operate a freezing process

Descriptor This unit is a specialist unit that has been developed for the fruit and vegetable sector. It covers the preparation and operation of a freezing 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
- Freezing methods may include air freezing, contact freezing and cryogenic freezing
- 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
- Services may include power, water, and compressed and instrumentation air and refrigeration
- 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 freezing process for operation	Materials are confirmed and available to meet production/recipe requirements Services are confirmed as available and ready for operation Equipment is checked to confirm readiness for use The freezing process is set to meet production requirements	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. **Demonstrated ability to:** – access workplace information to identify production requirements – select, fit and use personal protective clothing and/or equipment – confirm supply of necessary materials and services – liaise with other work areas – prepare materials as required – confirm equipment status and condition – set up and start up the process – monitor the process and equipment operation to identify out-of-specification results or non-compliance. This may include monitoring: ➢ tunnel and product temperatures ➢ throughput ➢ visually inspecting product – remove frozen waste product from equipment – defrost tunnels as required – monitor supply and flow of materials to and from the process *(cont.)*

Element	Performance criteria	Evidence guide – Part A
Operate and monitor the freezing process	The freezing process is started up according to company procedures Control points are monitored to confirm performance is maintained within specification Frozen product meets specification Equipment is monitored to confirm operating condition Out-of-specification product, process and equipment performance is identified, rectified and/or reported	*Demonstrated ability to: (continued)* – conduct product/batch changeovers – take corrective action in response to out-of-specification results or non-compliance – report and/or record corrective action as required – shut down equipment in response to an emergency situation – shut down equipment in response to routine shut down requirements – record workplace information – prepare equipment for cleaning – maintain work area to meet housekeeping standards May include the ability to: – clean and sanitise equipment – take samples and conduct test – carry out routine maintenance **Underpinning knowledge:** – purpose and basic principles of freezing – link to related processes – freezing methods used – basic principles and operation of refrigeration system – stages and changes which occur to product during freezing – quality characteristics and uses of frozen materials – common causes of variation and corrective action required – process specifications, procedures and operating parameters – equipment and instrumentation components, purpose and operation – basic operating principles of process control systems where relevant – method/s used to calculate yield – services used – significance and method of monitoring control points within the process – OHS hazards and controls – lock out and tag out procedures – procedures and responsibility for reporting problems – environmental issues and controls – shut down and cleaning requirements associated with changeovers and types of shut downs – waste handling requirements and procedures – recording requirements and procedures May include: – cleaning and sanitation procedures – sampling and testing procedures – routine maintenance procedures
Shut down the freezing process	The freezing process is shut down according to company procedures Waste is collected, treated and disposed or recycled according to company procedures	
Record information	Workplace information is recorded in the appropriate format	

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 freezing process given:

– work procedures including advice on safe work practices, food safety and environmental requirements
– production schedule, batch/recipe instructions
– sampling and testing schedules as required
– specifications, control points and processing parameters
– freezing equipment
– services as required
– materials to be frozen
– material safety data sheets where appropriate
– related work areas and communication system
– relevant OHS clothing and equipment
– routine preventative maintenance schedule as required
– cleaning schedule as required
– documentation and record keeping system

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 operate a freezing process in the workplace, units should be co-assessed.

Relationship to learning resources

Main learning resource:
- Freezing

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 (Fruit and Vegetables)
- Cleaning and Sanitation

FDF ZZHT2 A	Operate a heat treatment process

Descriptor This is a specialist unit that applies to the fruit and vegetable, aerated waters and dairy sectors. It covers the preparation and operation of a heat treatment 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
- Methods of heat treatment can include canning and bottling, hot fill, aseptic processing, pasteurisation, ultra-high temperature (UHT) and high temperature short time (HTST) processing
- Heat treatment equipment depends on the method of heat treatment. Common components of a heat treatment process include pumps, heat exchangers, holding and cooling stages, filters and clarifyers and direct steam injection injection equipment
- 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
- Services may include power, steam, water, compressed and instrumentation air, gas and refrigeration
- 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 heat treatment process for operation	Materials are confirmed and available to meet production/recipe requirements Services are confirmed as available and ready for operation Equipment is checked to confirm readiness for use The heat treatment process is set to meet production requirements	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. **Demonstrated ability to:** – access workplace information to identify production requirements – select, fit and use personal protective clothing and/or equipment – confirm supply of necessary materials and services – liaise with other work areas – prepare materials and packaging consumables as required – confirm equipment status and condition – set up and start up the process *(cont.)*

Element	Performance criteria	Evidence guide – Part A
Operate and monitor the heat treatment process	The heat treatment process is started up according to company procedures Control points are monitored to confirm performance is maintained within specification Heat treated product meets specification Equipment is monitored to confirm operating condition Out-of-specification product, process and equipment performance is identified, rectified and/or reported	*Demonstrated ability to: (continued)* – monitor supply and flow of materials to and from the process – monitor the process and equipment operation to identify out-of-specification results or non-compliance. This involves monitoring: ➢ time and temperature ➢ fill weight ➢ flow rates ➢ headspace ➢ flow diversion – take corrective action in response to out-of-specification results or non-compliance – conduct product/line changeovers – report and/or record corrective action as required – sort, collect, treat, recycle or dispose of waste – shut down equipment in response to an emergency situation – shut down equipment in response to routine shut down requirements – prepare equipment for cleaning – record workplace information – maintain work area to meet housekeeping standards May include the ability to: – clean and sanitise equipment – take samples and conduct test – carry out routine maintenance **Underpinning knowledge:** – purpose and basic principles of heat treatment. This includes type and growth requirements of micro-organisms in food – heat treatment requirements for low and/or high acid foods – link to related processes – stages and changes which occur during heat treatment – the effect of heat treatment on the end product – effect of raw materials on the process. This may include variables such as viscosity/texture, microbial load and acidity quality – quality requirements of heat treated products – relationship between time and temperature in the heat treatment process – process specifications, procedures and operating parameters – equipment and instrumentation components, purpose and operation *(cont.)*
Shut down the heat treatment process	Equipment is shut down according to company procedures Waste is collected, treated and disposed or recycled according to company procedures	
Record information	Workplace information is recorded in the appropriate format	

Element	Performance criteria	Evidence guide – Part A
		Underpinning knowledge: (continued) – basic operating principles of process control systems where relevant – services used – significance and method of monitoring control points within the process – common causes of variation and corrective action required – OHS hazards and controls – lock out and tag out procedures – procedures and responsibility for reporting problems – environmental issues and controls – cleaning requirements associated with changeovers and types of shut downs – shut down sequence – waste handling requirements and procedures – recording requirements and procedures May include: – cleaning and sanitation procedures – sampling and testing procedures – routine maintenance procedures

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 heat treatment 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
- heat treatment equipment
- services as required
- materials to be heat treated
- related work areas and communication system
- sampling and testing schedules as required
- 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
- Apply sampling techniques
- Clean and sanitise equipment
- Conduct routine preventative maintenance

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

Relationship to learning resources

Main learning resource:

- Heat Treatment (Fruit and Vegetable)
- Heat Treatment (Dairy)

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 (Fruit and Vegetables)

- Routine Testing (Dairy)
- Routine Sampling (Dairy)
- Cleaning and Sanitation

FDF ZZOH2 A	Operate homogenising equipment

Descriptor This is a specialist unit that applies to both the fruit and vegetable and dairy sectors. It covers the preparation and operation of homogenising 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
- Homogenising equipment typically includes a supply pump, homogeniser block, homogenising valve, pressure gauge, back-pressure valve and pressure relief valve. Related equipment may include a de-aeration unit
- Homogenising equipment may include pressure, micro-gap, centrifugal and ultrasonic homogenisers
- 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, water, vacuum and compressed and instrumentation air
- 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 homogenising equipment for operation	Materials are confirmed and available to meet production/recipe requirements Services are confirmed as available and ready for operation Equipment is checked to confirm readiness for use Equipment is set to meet production requirements	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. **Demonstrated ability to:** – access workplace information to identify production requirements – select, fit and use personal protective clothing and/or equipment – confirm supply of necessary materials and services – liaise with other work areas – confirm equipment status and condition – set up and start up the process – monitor the process and equipment operation to identify out-of-specification results or non-compliance. This may include monitoring temperature, pressure and throughput – monitor supply and flow of materials to and from the process – conduct product/batch changeovers *(cont.)*

Element	Performance criteria	Evidence guide – Part A
Operate and monitor the homogenising process	The homogenising process is started up according to company procedures Control points are monitored to confirm performance is maintained within specification Homogenised product meets specification Equipment is monitored to confirm operating condition Out-of-specification product, process and equipment performance is identified, rectified and/or reported	*Demonstrated ability to: (continued)* – take corrective action in response to out-of-specification results or non-compliance – report and/or record corrective action as required – sort, collect, treat, recycle or dispose of waste – shut down equipment in response to an emergency situation – shut down equipment in response to routine shut down requirements – prepare equipment for cleaning – maintain work area to meet housekeeping standards – record workplace information May include the ability to: – clean and sanitise equipment – take samples and conduct test – carry out routine maintenance **Underpinning knowledge:** – purpose and basic principles of homogenising – link to related processes – effect of raw materials on homogenisation. This may include variables such as solids (brix), acidity, temperature, consistency and colour on process outcomes – quality requirements of homogenised materials – process specifications, procedures and operating parameters – equipment components, purpose and principles of operation – services used – significance and method of monitoring control points within the process – common causes of variation and corrective action required – method/s of calculating yield – OHS hazards and controls – lock out and tag out procedures – procedures and responsibility for reporting problems – environmental issues and controls – shut down and cleaning requirements associated with changeovers and types of shut downs – shut down sequence – waste handling requirements and procedures – recording requirements and procedures May include: – cleaning and sanitation procedures – sampling and testing procedures – routine maintenance procedures
Shut down homogenising equipment	Equipment is shut down according to company requirements Waste is collected, treated and disposed or recycled according to company procedures	
Record information	Workplace information is recorded in the appropriate format	

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 homogenising equipment 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
– homogenising equipment
– services
– materials to be homogenised
– 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 homogenise materials in the workplace, units should be co-assessed.

Relationship to learning resources

Main learning resource:
- Homogenisation (Fruit and Vegetable)
- Homogenisation (Dairy)

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 (Fruit and Vegetables)
- Routine Testing (Dairy)
- Routine Sampling (Dairy)
- Cleaning and Sanitation

FDF FVRM2 A Pre-process raw materials

Descriptor This is a specialist unit that has been developed for the fruit and vegetable sector. It covers preparation and pre-processing treatment of raw materials.

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
- Pre-processing methods depend on production and may include fully of semi-automated peeling, slicing and dicing, blanching, milling and other specialist processes
- 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
- Services may include power, steam, water, vacuum and compressed and instrumentation air
- 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 pre-processing equipment for operation	Type and quality of materials for pre-processing are confirmed to meet production requirements Materials are transferred and loaded into pre-processing equipment as required 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	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. **Demonstrated ability to:** – access workplace information to identify production requirements – select, fit and use personal protective clothing and/or equipment – confirm supply of materials match production schedule – load or transfer materials to pre-processing equipment – confirm equipment status and condition – conduct batch/product changeover – set up and start up pre-processing equipment – monitor the process and equipment operation to identify out-of-specification results – take corrective action in response to out-of-specification results or non-compliance *(cont.)*

Element	Performance criteria	Evidence guide – Part A
Operate and pre-processing	The process is started up according to company procedures Control points are monitored to confirm performance within specification Pre-processed materials meet specification Equipment is monitored to confirm operating condition Out-of-specification product, process and equipment performance is identified, rectified and/or reported	*Demonstrated ability to: (continued)* – record and or report corrective action as required – monitor supply and flow of materials to and from the process – conduct product/batch changeovers – sort, collect, treat, recycle or dispose of waste – shut down equipment in response to an emergency situation – shut down equipment in response to routine shut down requirements – prepare equipment for cleaning – maintain work area to meet housekeeping standards – record workplace information May include the ability to: – clean and sanitise of equipment – take samples and conduct tests – carry out routine maintenance **Underpinning knowledge:** – purpose of pre-processing – link to related processes – stages and changes which occur during pre-processing – quality characteristics of pre-processed materials – effect of quality characteristics of raw materials on the process – methods used to calculate yield – process specifications, procedures and operating parameters – pre-processing equipment purpose and principles of operation – services used – significance and method of monitoring control points within the process – OHS hazards and controls – lock out and tag out procedures – procedures and responsibility for reporting problems – environmental issues and controls – shut down and cleaning requirements associated with changeovers and types of shut downs – waste handling requirements and procedures – recording requirements and procedures May include: – cleaning and sanitation procedures – sampling and testing procedures – routine maintenance procedures
Shut down the pre-processing equipment	The process is shut down according to company procedures Waste is collected, treated and disposed or recycled according to company procedures	
Record information	Workplace information is recorded in the appropriate format	

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 pre-processing processes 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
– pre-processing equipment
– services
– materials to be pre-processed
– related work areas and communication system
– routine preventative maintenance schedule as required
– relevant OHS clothing and equipment
– 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
- Shift materials safely
- Load and unload goods

Where related units are required to pre-process materials in the workplace, units should be co-assessed.

Relationship to learning resources

Main learning resource:

- Product Preparation B

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
- Materials Handling A and B

FDF ZZOR2 A	Operate a retort process

Descriptor This is a specialist unit that applies to both the fruit and vegetable and petfood sectors. It covers the preparation and operation of a retort or cooker.

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
- Retort/cooker equipment includes static and batch retorts and continuous retorts including hydrostatic cookers, with or without over-pressure, coding and materials handling equipment
- Equipment components typically include vents, bleeders, spreaders and time and temperature measurement instrumentation
- Materials may include hot or cold product filled into different size containers
- Services may include power, compressed and instrumentation air, steam and treated cooling water
- Process stages include cooking, cooling and post-cooling container handling
- 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 and temperature 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 retort process for operation	Materials are confirmed and available to meet production requirements Services are confirmed as available and ready for operation Equipment is checked to confirm readiness for use The retort process is set to meet production requirements	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. **Demonstrated ability to:** – access workplace information to identify production requirements – select, fit and use personal protective clothing and/or equipment – confirm supply of necessary materials and services. This includes confirming container coding, treating or confirming availability of treated cooling water – liaise with other work areas *(cont.)*

Element	Performance criteria	Evidence guide – Part A
Operate and monitor the retort process	Containers are loaded into retort The retort process is started up according to company procedures Control points are monitored to confirm performance is maintained within specification Equipment is monitored to confirm operating condition Retorted product meets specification Treated containers are handled to preserve seam integrity Out-of-specification product, process and equipment performance is identified, rectified and/or reported	*Demonstrated ability to: (continued)* – confirm equipment status and condition – set up and start up the process – monitor the cooking and cooling processes and equipment operation to identify out-of-specification results or non-compliance. This includes monitoring time, temperature and pressure at each stage – cool, clean and handle post-treated containers to meet requirements – take corrective action in response to out-of-specification results or non-compliance – monitor supply and flow of materials to and from the process – conduct batch/line changeovers – report and/or record corrective action as required – sort, collect, treat, recycle or dispose of waste – shut down equipment in response to an emergency situation – shut down equipment in response to routine shut down requirements – prepare equipment for cleaning – maintain workplace records – maintain work area to meet housekeeping standards May include the ability to: – clean and sanitise equipment – take samples and conduct tests – carry out routine maintenance
Shut down the retort process	The retort process is shut down according to company procedures Waste is collected, treated and disposed or recycled according to company procedures	

Record information	Workplace information is recorded in the appropriate format	**Underpinning knowledge:** – purpose and basic principles of heat treatment and retorting – link to related processes – stages and changes which occur during retorting, including cooking, cooling and post-treatment container handling – purpose of a scheduled process – the effect of variables such as container size and particulates, pH, water activity, time/temperature and pressure on process outcomes – main causes of contamination of canned products – container coding purpose and requirements – relationship between time and temperature in the retort process – process specifications, procedures and operating parameters – equipment and instrumentation components, purpose and operation. This includes thermometer, chart recorder, temperature control system, clock and pressure gauges *(cont.)*
Element	**Performance criteria**	**Evidence guide – Part A**
		Underpinning knowledge: (continued) – basic operating principles of process control systems where relevant – services used – significance and method of monitoring control points within the process – common causes of variation and corrective action required. This includes an understanding of emergency processing procedures – OHS hazards and controls – lock out and tag out procedures – procedures and responsibility for reporting problems – environmental issues and controls – shut down and cleaning requirements associated with changeovers and types of shut downs – waste handling requirements and procedures – recording requirements and procedures. This includes an understanding of legal requirements for recording retort details May include: – cleaning and sanitation procedures – sampling and testing procedures – routine maintenance procedures

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 retort 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
- retort/cooker equipment and instrumentation
- services
- packaged product to be retorted
- related work areas and communication system
- sampling and testing schedules as required
- 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
- Operate a heat treatment process

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 support operation of a retort process in the workplace, units should be co-assessed.

Relationship to learning resources

Main learning resource:

- Retort and Cooker Operation (Fruit and Vegetable)
- Retort and Cooker Operation (Petfood)

Related learning resources:

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

– Cleaning and Sanitation

FDF FVOS3 A	Operate a system (Fruit and Vegetable)

Descriptor

This is a specialist unit that has been customised for the fruit and vegetable 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
Prepare the system for operation	Supply of materials is confirmed to meet production/packaging requirements Work area is prepared for operation Services are confirmed as available and ready for operation Equipment is checked to confirm readiness for use The system is set to meet specifications	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. **Demonstrated ability to:** – liaise with relevant work areas to confirm or secure necessary materials, services, equipment and labour to meet production requirements – confirm that all equipment within the system meets hygiene and sanitation standards, all safety guards are in place and equipment is ready for operation – confirm that materials and packaging consumables have been cleared for use – monitor implementation of set-up and start up procedures. This may involve monitoring the use of checksheets by others – monitor observance of work procedures and systems – monitor materials flow and work-in-progress through the system *(cont.)*

Element	Performance criteria	Evidence guide – Part A
Operate and monitor the system	The system is started up according to company procedures Control points are monitored to confirm performance is maintained within specification Equipment is monitored to confirm operating condition System outputs meet specification Out-of-specification product, process and equipment performance is identified, rectified and/or reported	*Demonstrated ability to: (continued)* – confirm that the system operates within specified parameters and control points are monitored – determine responses to out-of-specification results or non-conformance within level of responsibility – co-ordinate batch/product changeovers – communicate information effectively – plan maintenance and cleaning procedures to minimise disruption – monitor operating efficiencies of the system and investigate, resolve and/or report problems – review and maintain procedures to support system improvements **Underpinning knowledge:** – purpose and principles of the system – equipment purpose and operation including an understanding of process control systems where used – technical knowledge of product/packaging characteristics and processing/packaging requirements – codes and legislation relating to product and packaging requirements – equipment calibration schedule and responsibilities – type and purpose of sampling and testing conducted – related work areas and departments – relevant procedures, specifications and operating parameters – relevant systems and legislative responsibilities in areas such as human resources, food safety, quality, occupational health and safety and environmental management – industrial awards and agreements relating to system operation – hazards, risks, controls and methods for monitoring processes within the system – maintenance and cleaning requirements of equipment in system – process improvement procedures and related consultative arrangements – troubleshooting procedures and problem solving techniques – recording and reporting requirements
Shut down the system	The system is shut down according to company procedures Equipment is cleaned and maintained to meet cleaning schedule and procedural requirements Waste generated by both the process and cleaning procedures is collected, treated and disposed or recycled according to company procedures	
Contribute to continuous improvement of the system	Quality of process outputs is assessed against specifications Opportunities for improvement are identified and investigated Proposals for improvements are developed and implemented within company planning arrangements and according to company procedures	
Record information	Workplace information is reported and recorded in the appropriate format	

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.
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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 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