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**AIDS HELPLINE: 0800-0123-22 Prevention is the cure**

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## GOVERNMENT NOTICES

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

No. 965

3 October 2001



Established in terms of Act 58 of 1995

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)

In accordance with regulation 24(2)(c) of the National Standards Bodies Regulations of 28 March 1998, the Standards Generating Body for Ancillary Health

Registered by NSB 09, Health Sciences and Social Services, publishes the following unit standards for public comment.

This notice contains the titles and specific outcomes of the unit standards. The full unit standards can be accessed via the SAQA web-site at [www.saqqa.org.za](http://www.saqqa.org.za). Copies may also be obtained from the Directorate of Standards Setting and Development at the SAQA offices, 659 Pienaar Street, Brooklyn, Pretoria.

Comment on the unit standards should reach SAQA at the address below *by no later than Friday 2 November 2001*. All correspondence should be marked **Standard Setting – SGB for Ancillary Health** and be addressed to

The Director : Standards Setting and Development  
SAQA

Attention: *Mr Dugmore Mphuthing*

Postnet Suite 248

Private Bag X06

WATERKLOOF

0145

or faxed to 012-482 0907

or e-mailed to [dmphuthing@saqa.co.za](mailto:dmphuthing@saqa.co.za)

11 SAMUEL B.A. ISAACS  
EXECUTIVE OFFICER

**Title:** General Education and Training Certificate (Adult Basic Education and Training) Level 1

**Field:** Health Sciences and Social Services

**Sub-Field:** Preventive Health; Curative Health; Promotive Health and developmental Services; Rehabilitative Health

**NQF Level :** 1

**Credits:** 120

**Purpose:**

Adult Basic Education and Training is part of an integrated lifelong learning dealing with basic literacy, numeracy and general education and certificated career paths. Learners who go through this programme and achieve the ABET level 4, NQF level 1 qualification are recognised for their ability to demonstrate skills in basic literacy, numeracy and general education and certificated career paths. The qualification also enables learners to further their studies within the NQF level 2 and above. Through the electives component of the programme learners are able to demonstrate vocational skills through which they are able to engage in life skills activities, small business development, health and environmental issues. Through recognition of prior learning adult learners are encouraged to access basic education with an understanding that they already have knowledge and experience.

Component	Unit Standards	Level	Credits	Total
Fundamental	• Language	1	20	36
	• Mathematics	1	16	
Core	• Life Orientation	1	14	54
	• Other unit standards according to the choices available at the specific ABET centre	1	40	
Elective Selection of a combination of a minimum of 30 credits)	• Engage in Basic Health Promotion	1	10	30
	• Perform Basic Life Support and/or First Aid Procedures in Emergencies	1	5	
	• Assess the Inter-Relationships between the Individual, Family and Community in terms of Primary Health Care (PHC)	1	10	
	• Assess the Client's Situation and Assist and Support both Client and Family to Manage Home Based Health Care	1	10	
	• Explain Preventative Measures to Reduce the Potential Impact of Disasters	1	5	
	• Assess Community Members to Access Services in accordance with their Health Related Human Rights	1	5	
Grand Total				120

**Field:** Health Sciences and Social Services

**Sub-Field:** Preventive Health  
Curative Health  
Promotive Health and Developmental Services  
Rehabilitative Health

### UNIT STANDARDS IN ANCILLARY HEALTH CARE

Title	NQF Level	ABET Level	Credits
1. Engage in Basic Health Promotion	1	4	10
2. Perform Basic Life Support and/or First Aid Procedures in Emergencies	1	4	5
3. Assess the Inter-Relationships between the Individual, Family and Community in terms of Primary Health Care (PHC)	1	4	10
4. Assess the Client's Situation and Assist and Support both Client and Family to Manage Home Based Health Care	1	4	10
5. Explain Preventative Measures to Reduce the Potential Impact of Disasters	1	4	5
6. Assess Community Members to Access Services in accordance with their Health Related Human Rights	1	4	5

#### NQF Level 1 and ABET Level 4

**Range:** These unit standards were written as electives for a General Education and Training Certificate (GETC) intended for Adult Basic Education and Training (ABET) learners. They may also provide entry to a qualification in Ancillary Health Care (AHC)

**1. Title:** Engage in Basic Health promotion

**Range:** Assist community members to identify their basic health needs and show how the community can be involved in health promotion

Specific Outcome 1.1: Identify basic health needs within the community

Specific Outcome 1.2: Describe problems associated with unmet health needs within the community

Specific Outcome 1.3: Identify any related projects already in existence

Specific Outcome 1.4: Draft a plan of action showing how the community can be involved in health promotion



**2. Title: Perform Basic Life Support and/or First Aid Procedures in Emergencies**

**Range:** The recognition and management of a range of emergencies according to the prescribed protocols

Specific Outcome 2.1: Demonstrate an understanding of Emergency Scene Management

Specific Outcome 2.2: Demonstrate an understanding of elementary anatomy and physiology.

Specific Outcome 2.3: Assess an emergency situation.

Specific Outcome 2.4: Apply appropriate First Aid procedures to the life-threatening situation where possible.

**Range:** Cardio-Pulmonary (CP) arrest; cessation of breathing; severe haemorrhage

Specific Outcome 2.5: Recognise and explain emergency situations that require Cardio-Pulmonary Resuscitation (CPR) and Artificial Respiration (AR)

Specific Outcome 2.6: Perform CPR and AR

Specific Outcome 2.7: Recognise and name common injuries

Specific Outcome 2.8: Treat common injuries

**3. Title: Assess the Inter-Relationships between the Individual, Family and Community in terms of Primary Health Care (PHC)**

**Range:** Includes knowledge of: elementary anatomy and physiology; basic human physical and mental development; health problems and disease patterns common to an identified community.

Specific Outcome 3.1: Demonstrate an understanding of elementary anatomy and physiology

Specific Outcome 3.2: Demonstrate a basic understanding of human physical and mental development through all the stages of life

Specific Outcome 3.3: Demonstrate an understanding of common health problems and disease patterns in an identified community.

Specific Outcome 3.4: Demonstrate a basic understanding of Sexually Transmitted Infections (STIs) including HIV/AIDS

Specific Outcome 3.5: Demonstrate a basic understanding of the spread and management of TB.

**4. Title: Assess the Client's Situation and Assist and Support both Client and Family to Manage Home Based Health Care.**

**Range:** Includes basic knowledge of the most common types of debilitating and terminal diseases, including the normal process of ageing. Be able to recognise when referral is needed.

Specific Outcome 4.1: Demonstrate a basic knowledge of disease and disability

Specific Outcome 4.2: Assist in the management of the client's condition and treatment under the supervision of a qualified health worker

Specific Outcome 4.3: Assist with mobility and the prevention of complications.

Specific Outcome 4.4: Identify when to refer the client or family

**5. Title: Explain Preventive Measures to Reduce the Potential Impact of Disasters.**

**Range:** Potential Impact refers to immediate, short and medium term impact. Disaster refers to natural and man-made as well as slow and sudden onset.

Specific Outcome 5.1: Explain the concept of "Disasters": the causes and potential effects on the community.

Specific Outcome 5.2: Identify relevant resources to prevent disasters in potentially dangerous situations.

Specific Outcome 5.3: Devise a simple disaster management plan

Specific Outcome 5.4: Explain the practical application of the plan mentioned in SO 5.3

**6. Title: Assist Community Members to Access Services in accordance with their Health Related Human Rights.**

**Range:** Includes basic knowledge and awareness of the Patient Rights' Charter and relevant sections of the Bill of Rights and an awareness of relevant legislation, rights and local protocols.

Specific Outcome 6.1: Demonstrate an understanding of the health related content in the Human Rights' and Patient Rights' Charters.

Specific Outcome 6.2: Identify appropriate service providers in the local community who deal with health related human rights issues.

Specific Outcome 6.3: Demonstrate the ability to assist community members to access the services mentioned in SO 6.2

Specific Outcome 6.4: Demonstrate an understanding of legislation and local protocols relating to disability, abuse, rape and the aged

Specific Outcome 6.5: Explain the appropriate action that can be taken by community members in the situations mentioned in SO 6.4.

No. 966

3 October 2001

**SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)**

In accordance with regulation 24(2)(c) of the National Standards Bodies Regulations of 28 March 1998, the Standards Generating Bodies (SGBs) for

- Dairy Technology
- Food Manufacturing
- Beverages

Registered by NSB 06, Manufacturing, Engineering and Technology, publishes the following unit standards-based qualifications and unit standards for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purposes of the qualifications, and the titles and specific outcomes of the unit standards upon which the qualifications are based. The full qualifications and unit standards can be accessed via the SAQA web-site at [www.saqa.org.za](http://www.saqa.org.za). Copies may also be obtained from the Directorate of Standards Setting and Development at the SAQA offices, 659 Pienaar Street, Brooklyn, Pretoria.

Comment on the qualifications and unit standards should reach SAQA at the address below by no later than Friday 2 November 2001. All correspondence should be marked **Standard Setting – SGB for Food Manufacturing**

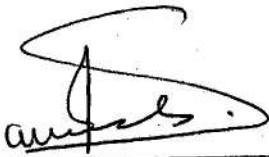
**SGB for Dairy Technology**

**SGB for Beverages** and be addressed to

The Director : Standards Setting and Development  
SAQA

Attention: Mr Dugmore Mphuthing  
Postnet Suite 248  
Private Bag X06  
WATERKLOOF  
0145

or faxed to 012-482 0907  
or e-mailed to [dmphuthing@saqa.co.za](mailto:dmphuthing@saqa.co.za)



pp **SAMUEL B.A. ISAACS**  
**EXECUTIVE OFFICER**



No. 967

3 October 2001

National Certificate in Food and Beverages Processing: Raw Milk and Cream Handling and Storing  
NQF 2

**Field:** Manufacturing, Engineering and Technology - NSB 06  
**Sub-field:** Manufacturing and Assembly  
**Level:** 2  
**Credit:** 120  
**Issue date:**  
**Review date:**

**Rationale of the qualification**

This qualification reflects the workplace-based needs of the dairy industry that is expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within the dairy industry and provides the flexibility to pursue different careers in the dairy industry and articulation within the food industry. The level of flexibility within the range of electives will allow the individual to pursue a career within a milk reception, laboratory, quality assurance, mixing and blending of raw materials and information technology environment.

**Purpose of the qualification**

A person acquiring this qualification will be able to evaluate the quality of raw milk or cream and receive, store and maintain raw milk or cream for processing and manufacturing of dairy products or chocolate confectionery or frozen dairy ice cream products.

This qualification will allow a person to advance to learning for a dairy processing qualification at NQF level 3. The quality evaluation unit standards provide credits that can be carried over to a dairy or food laboratory analyst qualification at level 3. This qualification will enhance the social status and productivity within the dairy industry.

**Access to the Qualification**

Open access

**Learning assumed to be in place**

A knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 1.

**Exit level Outcomes**

Qualifying learners can:

Exit level 1: Maintain and apply good manufacturing practices in a raw milk or cream handling and storing environment.

**Associated Assessment Criteria**

- Knowledge and comprehension regarding personal safety practices in a raw milk and cream handling and storing environment is applied according to standard operating procedures and safety requirements,
- Personal health, hygiene and presentation in a dairy processing environment is maintained according to the Occupational Health and Safety Act,
- Knowledge and comprehension of the effect of micro-organisms on personal health, hygiene and dairy product safety is applied according to standard dairy microbiology principles,
- Milk or cream reception equipment and surfaces are cleaned and sanitised manually and according to standard operating procedures.

Exit level 2: Receive and store raw milk or cream in a silo at a milk reception facility.

**Associated Assessment Criteria**

- Knowledge and comprehension of dairy terminology, equipment and systems is applied according to standard dairy principles,
- Knowledge and comprehension of heating and cooling media in a milk reception facility is applied according to standard dairy principles,
- Knowledge and comprehension of the effect of micro-organisms on the quality of raw milk during raw milk handling is applied according to standard dairy microbiological principles,
- Knowledge and comprehension the nature of milk and its transformation into commercial dairy products is applied according to standard dairy principles,
- Raw milk or cream is received and stored in a silo at a milk reception facility according to standard operating procedures,
- A dairy reception facility is cleaned and sanitised using an automated cleaning in-place system and according to standard operating procedures.

Exit level 3: Analyse and evaluate the quality of raw milk or cream for intake at milk reception.

**Associated Assessment Criteria**

- Food laboratory safety is maintained according to standard laboratory procedures,
- The quality of raw milk is analysed and evaluated in terms of its protein stability as indicated by the alizarol test,
- The quality of raw milk is analysed and evaluated in terms of its antibiotics content,
- The quality of milk is analysed and evaluated in terms of its solids-not-fat content,
- The quality of a dairy product is analysed and evaluated in terms of its fat content, as indicated by the Gerber fat determination method,
- The quality of a food product is analysed and evaluated in terms of its pH,
- The quality of milk or a dairy product is analysed and evaluated in terms of its titratable acidity,
- The quality of cream is analysed and evaluated in terms of its fat content, as indicated by the Babcock fat determination method,
- The quality of raw milk is analysed and evaluated in terms of its microbial load, as indicated by the resazurin test.
- The temperature of raw milk or cream is analysed and evaluated.

**International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian, New Zealand and German qualifications. Similar part-qualifications though not unit standards based are found in all the Dairying countries in Western Europe and North America.

**Integrated Assessment**

The applied competence (practical, foundational and reflective competencies) of this qualification will be achieved if a candidate is able to evaluate the quality of raw milk or cream and receive, store and maintain raw milk or cream for processing and manufacturing of dairy products or chocolate confectionery or frozen dairy ice cream products.

The identification and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflexive competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The receiving and storing of milk or cream, representative sample taking, cleaning and sanitising and quality assuring the raw milk or cream by means of laboratory tests can be assessed in one application. Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment. A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

**Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

**Articulation possibilities**

This qualification will allow a person to advance to learning for a dairy processing qualification at NQF level 3. The quality evaluation unit standards provide credits that can be carried over to a dairy or food laboratory analyst qualification at NQF level 3.

**Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of



the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

#### Criteria for registration of assessors

Assessors need experience in the following areas:

Interpersonal skills, subject matter and assessment.

The assessor needs to be competent in the planning and conducting of assessment of learning outcomes and in the design and development of assessments as described in the unit standards **Plan and conduct assessment of learning outcomes NQF level 5**. Subject matter experience must be well developed within the field of raw milk and cream receiving and storing and the quality assurance tests and practices. The assessor must have completed:

- ☐ a similar qualification with a minimum of 6-12 months field experience after he/she has completed the qualification or,
- ☐ national certificate in dairy primary processing NQF 3 or,
- ☐ national certificate in Dairy Technology NQF 4 or,
- ☐ food science and technology qualification on level 5 or higher.

The subject matter experience of the assessor can be established by recognition of prior learning.

Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.

# National Certificate in Food and Beverage Processing: Raw Milk and Cream Handling and Storing NQF 2

120 credits

Fundamental		L	Cr	Core		L	Cr
<b>Field of Communication and Language</b>				Maintain personal hygiene, health and presentation in a food environment.		1	3
Maintain and adapt oral communication.		2	5	Take a representative food sample.		1	3
Access and use information from texts.		2	5	Apply personal safety practices in a food manufacturing environment.		1	4
Write for a defined context.		2	5	Measure the temperature of food products and evaluate the readings.		1	1
Use language and communication in occupational learning programmes.		2	5	Clean and sanitise food manufacturing equipment and surfaces manually.		1	3
<b>Field of Physical, Mathematical, Computer and life Sciences</b>				Demonstrate knowledge of dairy terminology, equipment and systems.		1	4
Demonstrate understanding of rational and irrational numbers and number systems		2	3	Apply knowledge of the effect of micro-organisms on personal health, hygiene and food safety.		2	4
Use mathematics to investigate and monitor the financial aspects of personal and community life		2	2	Demonstrate knowledge of heating and cooling media in a food manufacturing environment.		2	3
Work with a wide range of patterns and basic functions and solve related problems		2	2	Receive and store raw milk or cream in a silo at a milk reception facility.		2	8
Use mathematical models to represent and deal with problems that arise in real life contexts		2	2	Demonstrate knowledge of the nature of milk and its transformation into commercial dairy products.		2	5
Identify, describe, compare, classify, calculate shape and motion in 2- and 3-dimensional shapes in different contexts		2	3	Demonstrate knowledge of the effect of micro-organisms on the quality of raw milk during raw milk handling.		2	3
Demonstrate knowledge of introductory principles of chemistry and physics.		2	4	Evaluate the quality of milk in terms of its protein stability as indicated by the alisarol test.		2	3
				Evaluate the quality of raw milk in terms of its antibiotics content.		2	3
				Clean and sanitise a food processing system using an automated cleaning in-place system.		2	5
				Evaluate the quality of milk in terms of its solids-not-fat content.		3	3
				Evaluate the quality of a dairy product in terms of its fat content, as indicated by the Gerber fat determination method.		3	4
				Evaluate the quality of a food product in terms of its pH.		3	4
<b>Total available credits</b>			<b>38</b>	<b>Total available credits</b>			<b>63</b>

<b>Electives (Choose a minimum of 19 credits)</b>			L	Cr
Evaluate the acceptability of raw milk on the farm for bulk milk collection.			2	3
Evaluate the quality of milk or a dairy product in terms of its titratable acidity.			2	3
Pre-batch food related raw materials.			2	4
Mix or blend food raw materials for processing using automated equipment.			2	4
Determine the volume of bulk milk by means of a weigh bridge.			2	4
Maintain food laboratory safety.			2	4
Collate and shrink-wrap packaged products using automated wrapping equipment.			2	4
Use a personal computer operating system.			2	3
Operate a personal computer system.			2	6
Evaluate the quality of cream in terms of its fat content, as indicated by the Babcock fat determination method.			3	4
Evaluate the quality of milk in terms of its freezing point.			3	4
Evaluate the quality of raw milk in terms of its microbial load, as indicated by the resazurin test.			3	4
Evaluate the composition of raw milk as determined by an infra-red analyser.			3	6

## **UNIT STANDARDS IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGE PROCESSING: RAW MILK AND CREAM HANDLING AND STORING NQF 2**

### **UNIT STANDARDS ON NQF LEVEL 1**

- Title 1:** Maintain personal hygiene, health and presentation in a food environment (Registered, Dairy SGB).
- Title 2:** Take a representative food sample (Registered, Dairy SGB).
- Title 3:** Apply personal safety practices in a food manufacturing environment (Registered, Dairy SGB).
- Title 4:** Measure the temperature of food products and evaluate the readings (Registered, Dairy SGB).
- Title 5:** Clean and sanitise food manufacturing equipment and surfaces manually (Registered, Dairy SGB).
- Title 6:** Demonstrate knowledge of dairy terminology, equipment and systems (Registered, Dairy SGB).

### **UNIT STANDARDS ON NQF LEVEL 2**

- Title 1:** Clean and sanitise a food processing system using an automated cleaning in-place system (Registered, Food SGB).
- Title 2:** Demonstrate knowledge of introductory principles of chemistry and physics (To be registered, Dairy SGB).
- Title 3:** Apply knowledge of the effect of micro-organisms on personal health, hygiene and food safety (Registered, Dairy SGB).
- Title 4:** Demonstrate knowledge of heating and cooling media in a food manufacturing environment (Registered, Dairy SGB).
- Title 5:** Receive and store raw milk or cream in a silo at a milk reception facility (Registered, Dairy SGB).
- Title 6:** Demonstrate knowledge of the nature of milk and its transformation into commercial dairy products (Registered, Dairy SGB).
- Title 7:** Demonstrate knowledge of the effect of micro-organisms on the quality of raw milk during raw milk handling (Registered, Dairy SGB).
- Title 8:** Evaluate the quality of milk in terms of its protein stability as indicated by the alizarol test (Registered, Dairy SGB).
- Title 9:** Evaluate the quality of raw milk in terms of its antibiotics content (Registered, Dairy SGB).
- Title 10:** Evaluate the acceptability of raw milk on the farm for bulk milk collection (Registered, Dairy SGB).
- Title 11:** Evaluate the quality of milk or a dairy product in terms of its titratable acidity (Registered, Dairy SGB).
- Title 12:** Pre-batch food related raw materials (Registered, Food SGB).



- Title 13:** Mix or blend food raw materials for processing using automated equipment (Registered, Food SGB).
- Title 14:** Determine the volume of bulk milk by means of a weigh bridge (Registered, Dairy SGB).
- Title 15:** Maintain food laboratory safety (Registered, Dairy SGB).
- Title 16:** Collate and shrink-wrap packaged products using automated wrapping equipment (Registered, Dairy SGB).
- Title 17:** Use a personal computer operating system (Registered, IT SGB).
- Title 18:** Operate a personal computer system (Registered, IT SGB).
- Title 19:** Maintain and adapt oral communication (Registered, NSB 04).
- Title 20:** Access and use information from texts (Registered, NSB 04).
- Title 21:** Write for a defined context (Registered, NSB 04).
- Title 22:** Accommodate audience and context needs in oral communication (Registered, NSB 04).
- Title 23:** Demonstrate understanding of rational and irrational numbers and number systems (Registered, NSB 10).
- Title 24:** Use mathematics to investigate and monitor the financial aspects of personal and community life (Registered, NSB 10).
- Title 25:** Work with a wide range of patterns and basic functions and solve related problems (Registered, NSB 10).
- Title 26:** Use mathematical models to represent and deal with problems that arise in real life contexts (Registered, NSB 10).
- Title 27:** Identify, describe, compare, classify, calculate shape and motion in 2-and 3-dimensional shapes in different contexts (Registered, NSB 10).

### UNIT STANDARDS AT NQF LEVEL 3

- Title 1:** Evaluate the quality of milk in terms of its solids-not-fat content (Registered, Dairy SGB).
- Title 2:** Evaluate the quality of a dairy product in terms of its fat content, as indicated by the Gerber fat determination method (Registered, Dairy SGB).
- Title 3:** Evaluate the quality of a food product in terms of its pH (Registered, Dairy SGB).
- Title 4:** Evaluate the quality of cream in terms of its fat content, as indicated by the Babcock fat determination method (Registered, Dairy SGB).
- Title 5:** Evaluate the quality of milk in terms of its freezing point (Registered, Dairy SGB).
- Title 6:** Evaluate the quality of raw milk in terms of its microbial load, as indicated by the resazurin test (Registered, Dairy SGB).
- Title 7:** Evaluate the composition of raw milk as determined by an infra-red analyser (Registered, Dairy SGB).

**Unit Standards and Specific Outcomes For National Certificate In Food and Beverage Processing:  
Raw Milk and Cream Handling and Storing NQF 2**

**UNIT STANDARDS AT NQF LEVEL 2**

**1. TITLE:** Demonstrate knowledge of introductory principles of chemistry and physics.

**Specific outcome 1.1:** Demonstrate knowledge of the nature of matter.

**Specific outcome 1.2:** Demonstrate knowledge of the nature of water.

**Specific outcome 1.3:** Demonstrate knowledge of temperature, energy and heat.

**Specific outcome 1.4:** Demonstrate knowledge of introductory principles of physics.

No. 968

3 October 2001

**National Certificate in Food Laboratory Practices: Dairy Laboratory Analyst NQF 3**

**Field:** Manufacturing, Engineering and Technology - NSB 06  
**Sub-field:** Manufacturing and Assembly  
**Level:** 3  
**Credit:** 130  
**Issue date:**  
**Review date:**

**Rationale of the qualification**

This qualification reflects the workplace-based needs of the dairy industry that are expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within the dairy industry and provides the flexibility to pursue a quality control and assurance career in the dairy industry and articulation within the food industry.

The level of flexibility within the range of electives will allow the individual to pursue a career as a quality control and assurance analyst within the food and beverage analytical, microbiological and biochemical laboratory environment leading to articulation within the laboratory supervision environment.

**Purpose of the qualification**

A person acquiring this qualification will be able to perform quality evaluation techniques and procedures to establish the physical, chemical, sensory, compositional and microbiological quality of a range of dairy products.

This qualification will allow a person to advance to a food and beverages quality control and assurance practices or supervision qualification at NQF level 4. This qualification will enhance the social status and productivity within the dairy industry.

**Access to the Qualification**

Open access

**Learning assumed to be in place**

A knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 1 and 2.

**Exit level Outcomes**

Qualifying learners can:

**Exit level 1: Maintain and apply safety practices in a food quality assurance laboratory.**

**Associated Assessment Criteria**

- Prepare glassware and media for determination procedures in a food laboratory according to standard operating procedures.
- Maintain safety aspects regarding housekeeping, handling and storing of equipment and reagents in a food laboratory according to standard operating procedures.
- Apply knowledge and comprehension regarding personal safety practices in a food quality control and assurance environment according to safety principles.
- Maintain personal health, hygiene and presentation in a food quality control and assurance environment according to standard operating procedures.

**Exit level 2: Understand the nature and composition of milk and its components**

**Associated Assessment Criteria**

- Apply knowledge and comprehension regarding the nature of milk and its transformation into commercial dairy products according to dairy scientific and technological principles.
- Apply knowledge and comprehension regarding microbiological principles in a dairy environment according to microbiological principles.
- Apply knowledge and comprehension the functional components of milk according to dairy scientific principles.

**Exit level 3: Determine the quality of raw milk.**

**Associated Assessment Criteria**

- Evaluate the quality of raw milk in terms of its protein stability, as indicated by the alisarol test according to standard operating procedures.
- Evaluate the quality of raw milk in terms of its antibiotic content according to standard operating procedures.
- Evaluate the quality of milk or a dairy products in terms of its titratable acidity according to standard operating procedures.
- Evaluate the quality of raw milk in terms of its pH according to scientific principles.
- Evaluate the quality of raw milk in terms of its fat content according to the Gerber Fat determination method.
- Evaluate the quality of raw milk in terms of its solids-non-fat content according to standard operating procedures.
- Evaluate the microbiological quality of raw milk according to pour plate methods according to standard operating procedures.
- Monitor quality assurance practices in a dairy manufacturing environment according to standard operating procedures.
- Evaluate the quality of raw milk in terms of its microbial load according to the resazurin test method
- Evaluate the quality of raw cream in terms of its fat content according to the Babcock fat determination method.

**Exit level 4:** Determine the quality of pasteurised milk, cream and fruit-milk mixtures.

**Associated Assessment Criteria**

- Evaluate the quality of milk or dairy products in terms of its titratable acidity according to standard operating procedures.
- Evaluate the quality of pasteurised milk or dairy products in terms of its pH according standard operating procedures.
- Evaluate the quality of pasteurised milk or dairy products in terms of its fat content according to the Gerber Fat determination method.
- Evaluate the quality of pasteurised milk or dairy products in terms of its solids-non-fat content according to standard operating procedures.
- Evaluate the microbiological quality of dairy products according to pour plate methods.
- Monitor quality assurance practices in a dairy manufacturing environment according to standard operating procedures.
- Evaluate the quality of pasteurised cream in terms of its fat content according to the Babcock fat determination method.
- Evaluate the sensory quality of pasteurised milk according to sensory determination principles.
- Evaluate the efficiency of milk or cream pasteurisation according to the phosphatase test.
- Evaluate the quality of raw or pasteurised milk in terms of its freezing point according to standard operating procedures.
- Evaluate the quality of fruit juice, fruit juice concentrate or fruit-milk mixture in terms of its Brix-acid ratio according to standard operating procedures.
- Evaluate the quality of a fruit juice in terms of its Brix value according to standard operating procedures.
- Evaluate the efficiency of homogenisation of a liquid dairy product according to the homogenisation index method.

**Exit level 5:** Determine the quality of butter and butter related spreads.

**Associated Assessment Criteria**

- Evaluate the quality of raw cream in terms of its pH according to according to standard operating procedures.
- Evaluate the microbiological quality of butter and butter related spreads according to pour plate methods.
- Monitor quality assurance practices in a dairy manufacturing environment according to standard operating procedures.
- Evaluate the quality of fat-, salt, moisture- and solids-non-fat content of butter according to the Kohman test method.
- Evaluate the compositional and sensory quality of butter and butter related spreads according to standard operating procedures.

**Exit Level 6:** Determine the quality of ripened cheese.

**Associated Assessment Criteria**

- Evaluate the compositional and sensory quality of ripened cheese according to standard operating procedures.



- Evaluate the quality of cheese in terms of its salt content according to standard operating procedures.
- Evaluate the quality of cheese in terms of its moisture content according the oven drying method.
- Evaluate the quality of whey in terms of its titratable acidity according to standard operating procedures.
- Evaluate the quality of cheese in terms of its pH according to standard operating procedures.
- Evaluate the quality of ripened cheese in terms of its fat content according to the Gerber Fat determination method.
- Evaluate the microbiological quality of ripened cheese according to pour plate methods according to standard operating procedures.
- Monitor quality assurance practices in a dairy manufacturing environment according to standard operating procedures.

**Exit Level 7: Determine the quality of fermented dairy products.**

**Associated Assessment Criteria**

- Evaluate the compositional and sensory quality of fermented dairy products according to standard operating procedures.
- Evaluate the quality of fermented dairy products in terms of its moisture content according the oven drying method.
- Evaluate the quality of fermented dairy products in terms of its viscosity according to standard operating procedures.
- Evaluate the quality of fermented dairy products in terms of its pH according to standard operating procedures.
- Evaluate the quality of fermented dairy products in terms of its fat content according to the Gerber Fat determination method.
- Evaluate the microbiological quality of fermented dairy products according to pour plate methods according to standard operating procedures.
- Monitor quality assurance practices in a dairy manufacturing environment according to standard operating procedures.

**Exit Level 8: Determine the quality of cottage cheese.**

**Associated Assessment Criteria**

- Evaluate the compositional and sensory quality of cottage cheese according to standard operating procedures.
- Evaluate the quality of cottage cheese in terms of its moisture content according the oven drying method.
- Evaluate the quality of cottage cheese in terms of its pH according to standard operating procedures.
- Evaluate the microbiological quality of cottage cheese according to pour plate methods according to standard operating procedures.
- Monitor quality assurance practices in a dairy manufacturing environment according to standard operating procedures.

**Exit Level 9: Determine the quality of dried dairy products.**

**Associated Assessment Criteria**

- Evaluate the compositional and sensory quality of a dairy powder according to standard operating procedures.
- Evaluate the quality of a dairy powder in terms of its moisture content according the oven drying method.
- Evaluate the quality of a dairy powder in terms of its pH according to standard operating procedures.
- Evaluate the microbiological quality of a dairy powder according to pour plate methods according to standard operating procedures.
- Monitor quality assurance practices in a dairy manufacturing environment according to standard operating procedures.
- Evaluate the quality of a dairy powder in terms of its antibiotic content according to standard operating procedures.
- Evaluate the quality of a dairy powder in terms of its solubility according to standard operating procedures.
- Evaluate the quality of a dairy powder in terms of the amount of scorched particles according to standard operating procedures.
- Evaluate the quality of a dairy powder in terms of its moisture content according to the Toluene distillation method.
- Evaluate the quality of instant milk powder in terms of its dispersibility according to standard operating procedures.
- Evaluate the quality of a dairy powder in terms of its bulk density according to standard operating procedures.
- Evaluate the quality of a dairy powder in terms of its Brix value according to standard operating procedures.

**Exit level 10: Determine the quality of dairy liquid long life products.**

**Associated Assessment Criteria**

- Evaluate the quality of dairy liquid long life products in terms of its titratable acidity according to standard operating procedures.
- Evaluate the quality of dairy liquid long life products in terms of its pH according standard operating procedures.
- Evaluate the quality of dairy liquid long life products in terms of its fat content according to the Gerber Fat determination method.
- Evaluate the microbiological quality of dairy liquid long life products according to pour plate methods.
- Monitor quality assurance practices in a dairy manufacturing environment according to standard operating procedures.
- Evaluate the efficiency of dairy liquid long life products pasteurisation according to the phosphatase test.
- Evaluate the quality of dairy liquid long life products in terms of its freezing point according to standard operating procedures.
- Evaluate the quality of fruit juice, fruit juice concentrate or fruit-milk mixture in terms of its Brix-acid ratio according to standard operating procedures.
- Evaluate the quality of a fruit juice in terms of its Brix value according to standard operating procedures.

- Evaluate the efficiency of homogenisation of dairy liquid long life products according to the homogenisation index method.
- Evaluate the compositional and sensory quality of dairy liquid long life products according to standard operating procedures.

**Exit level 11:** Determine the quality of processed cheese products.

**Associated Assessment Criteria**

- Evaluate the compositional and sensory quality of processed cheese according to standard operating procedures.
- Evaluate the quality of processed cheese in terms of its salt content according to standard operating procedures.
- Evaluate the quality of processed cheese in terms of its moisture content according to the oven drying method.
- Evaluate the quality of processed cheese in terms of its pH according to standard operating procedures.
- Evaluate the quality of processed cheese in terms of its fat content according to standard operating procedures.
- Evaluate the microbiological quality of processed cheese according to pour plate methods.
- Monitor quality assurance practices in a dairy manufacturing environment according to standard operating procedures.

**Exit level 12:** Determine the quality of sweetened condensed milk products.

**Associated Assessment Criteria**

- Evaluate the compositional and sensory quality of sweetened condensed milk products according to standard operating procedures.
- Evaluate the quality of sweetened condensed milk products in terms of its moisture content according to the oven drying method.
- Evaluate the quality of condensed milk products in terms of its viscosity according to standard operating procedures.

**Exit level 13:** Determine the quality of frozen dairy ice cream and ice cream related products.

**Associated Assessment Criteria**

- Evaluate the compositional and sensory quality of frozen dairy ice cream and ice cream related products according to standard operating procedures.
- Evaluate the quality of frozen dairy ice cream and ice cream related products in terms of its moisture content according to the oven drying method.
- Evaluate the quality of frozen dairy ice cream and ice cream related products in terms of its pH according to standard operating procedures.
- Evaluate the quality of frozen dairy ice cream and ice cream related products in terms of its fat content according to standard operating procedures.
- Evaluate the microbiological quality of frozen dairy ice cream and ice cream related products according to pour plate methods.

- Monitor quality assurance practices in a dairy manufacturing environment according to standard operating procedures.
- Evaluate the quality of frozen dairy ice cream and ice cream related products in terms of its viscosity according to standard operating procedures.

### **International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian, New Zealand and German qualifications. Similar qualifications though not unit standards based are found in all the Dairying counties in Western Europe and North America. A qualification resembling comparability was found on the New Zealand qualification framework at level 4. This dairy manufacturing laboratory technology certificate on level 4 focuses on developing of learners towards advanced science and technology development of laboratory methods, clearly a qualification with a different focus..

### **Integrated Assessment**

The applied competence (practical, foundational and reflexive competencies) of this qualification will be able to perform quality evaluation techniques and procedures to establish the physical, chemical, sensory, compositional and microbiological quality of a range of dairy products.

The identifying and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflexive competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment. A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

### **Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

### **Articulation possibilities**

This qualification will enable the qualifying learner to progress to learning for the national certificate in food and beverages quality control and assurance practices or quality control supervision qualification at NQF level 4.

### **Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.

- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

#### Criteria for registration of assessors

For an applicant to register as an assessor, the applicant needs:

- Well developed interpersonal skills, subject matter and assessment experience.
- The assessor needs to be competent in the planning and conducting assessment of learning outcomes as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5. The subject matter experience must be well developed within the field of dairy laboratory practices, procedures and quality assurance microbiological and analytical tests..
- a similar qualification with a minimum of 6-12 months field experience after he/she has completed the qualification or,
- food science and technology qualification on level 5 or higher.
- The subject matter experience of the assessor can be established by recognition of prior learning.
- Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.
- Detailed documentary proof of educational qualification, practical training undergone, and experience gained by the applicant must be provided (Portfolio of evidence)



**National Certificate in Food Laboratory Practices: Dairy Laboratory Analyst NQF 3 130 credits**

Fundamental		L	Cr	Core		L	Cr
<b>Field of Communication and Language</b>				<b>Prepare glassware and media for determination procedures in a food laboratory.</b>		<b>1</b>	<b>4</b>
Accommodate audience and context needs in oral communication.		3	5	Evaluate the quality of milk in terms of its protein stability, as indicated by the alisarol test.		2	3
Interpret and use information from texts.		3	5	Evaluate the quality of raw milk in terms of its antibiotics content.		2	3
Write texts for a range of communicative context.		3	5	Demonstrate knowledge of the nature of milk and its transformation into commercial dairy products.		2	5
Use language and communication in an occupational learning programmes.		3	5	Maintain food laboratory safety.		2	4
<b>Field of Physical, Mathematical, Computer and Life Sciences</b>				Evaluate the quality of a milk or a dairy product in terms of its titratable acidity.		2	3
Produce and use spreadsheets for business.		3	5	Apply microbiological principles in a food or beverage environment.		3	6
Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways.		3	2	Evaluate the quality of a food product in terms of its pH.		3	4
Use mathematics to investigate and monitor the financial aspects of personal, business and national issues.		3	2	Evaluate the quality of a dairy product in terms of its fat content, as indicated by the Gerber fat determination method.		3	4
Work with a range of patterns of basic functions and solve related problems.		3	3	Evaluate the sensory quality of pasteurised milk.		3	5
Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts.		3	4	Evaluate the quality of milk in terms of its solids-non-fat content.		3	3
Demonstrate knowledge of chemistry principles.		3	6	Evaluate the efficiency of milk or cream pasteurisation, as indicated by the phosphatase test.		3	4
				Evaluate the microbiological quality of a food product by means of pour plate methods.		3	12
				Monitor and control quality control practices in a food or beverage manufacturing environment.		3	4
				Demonstrate knowledge of the functional components of milk.		4	7
<b>Total available credits</b>			<b>42</b>	<b>Total available credits</b>			<b>71</b>

<b>Electives Choose a minimum of 17 credits</b>		L	Cr
Evaluate the quality of a dairy powder in terms of its solubility.		2	2
Evaluate the quality of a dairy powder in terms of the amount of scorched particles.		2	2
Evaluate the quality of milk in terms of its freezing point (306).		3	4
Evaluate the quality of raw milk in terms of its microbial load, as indicated by the resazurin test.		3	4
Evaluate the quality of a fruit juice, fruit juice concentrate or fruit-milk mixture, as indicated by its Brix-acid ratio.		3	2
Evaluate the quality of a food product in terms of its Brix-value.		3	2
Evaluate the efficiency of homogenisation of a liquid dairy product, as indicated by the homogenisation index.		3	2
Evaluate the quality of a food product in terms of its fat content as indicated by the Mojonnier fat determination method.		3	5
Evaluate the quality of a dairy powder in terms of its moisture content, as indicated by the Toluene Distillation Method.		3	3
Evaluate the quality of instant milk powder in terms of its dispersibility.		3	2
Evaluate the quality of a dairy powder in terms of its bulk density.		3	2
Evaluate the quality of cream in terms of its fat content, as indicated by the Babcock fat determination method.		3	4
Evaluate the fat-, salt-, moisture- and solids-non-fat content of butter as indicated by the Kohman test.		3	5
Evaluate the quality of a food product in terms of its moisture content using the oven drying method.		3	3
Evaluate the activity of a starter culture in terms of its pH or % titratable acidity.		3	2
Evaluate the quality of a food product in terms of its viscosity.		3	3
Evaluate the composition of raw milk as determined by an infra-red analyser.		3	6
Evaluate the quality of cheese in terms of its salt content.		3	3
Evaluate the extent of saturation of butterfat (in cream or butter) as indicated by its iodine value.		4	4
Evaluate the compositional and sensory quality of butter.		4	6
Evaluate the compositional and sensory quality of cheese.		4	8

Evaluate the compositional and sensory quality of dried dairy products.	4	5
Evaluate the compositional and sensory quality of frozen dairy ice cream or ice cream related products.	4	5
Evaluate the compositional and sensory quality of fermented dairy products.	4	6
Evaluate the compositional and sensory quality of cottage cheese products.	4	5
Evaluate the compositional and sensory quality of liquid long life dairy products.	4	5
Evaluate the compositional and sensory quality of condensed milk products.	4	5
Evaluate the compositional and sensory quality of process cheese.	4	5
Evaluate the microbiological quality of a food product as indicated by the test for <i>Salmonella</i> .	4	5
Evaluate the microbiological quality of a food product as indicated by the test for <i>Staphylococcus aureus</i> .	4	5
Demonstrate an understanding of the relationship between micro-organisms and food spoilage	4	8

## National Certificate in Food Laboratory Practices: Dairy Laboratory Analyst NQF 3

### UNIT STANDARDS ON NQF LEVEL 1

- Title 1:** Prepare glassware and media for determination procedures in a food laboratory (Registered Dairy SGB).

### UNIT STANDARDS ON NQF LEVEL 2

- Title 1:** Evaluate the quality of milk in terms of its protein stability, as indicated by the alisarol test (Registered Dairy SGB).
- Title 2:** Evaluate the quality of raw milk in terms of its antibiotics content (Registered Dairy SGB).
- Title 3:** Demonstrate knowledge of the nature of milk and its transformation into commercial dairy products (Registered Dairy SGB).
- Title 4:** Maintain food laboratory safety (Registered Dairy SGB).
- Title 5:** Evaluate the quality of a milk or a dairy product in terms of its titratable acidity (Registered Dairy SGB).
- Title 6:** Evaluate the quality of a dairy powder in terms of its solubility (Registered Dairy SGB).
- Title 7:** Evaluate the quality of a dairy powder in terms of the amount of scorched particles (Registered Dairy SGB).

### UNIT STANDARDS AT NQF LEVEL 3

- Title 1:** Apply microbiological principles in a food or beverage environment.
- Title 2:** Evaluate the quality of a food product in terms of its pH (Registered Dairy SGB).
- Title 3:** Evaluate the quality of a dairy product in terms of its fat content, as indicated by the Gerber fat determination method (Registered Dairy SGB).
- Title 4:** Evaluate the sensory quality of pasteurised milk (Registered Dairy SGB).
- Title 5:** Evaluate the quality of milk in terms of its solids-non-fat content (Registered Dairy SGB).
- Title 6:** Evaluate the efficiency of milk or cream pasteurisation, as indicated by the phosphatase test (Registered Dairy SGB).
- Title 7:** Evaluate the microbiological quality of a food product by means of pour plate methods (Registered Dairy SGB).
- Title 8:** Monitor and control quality control practices in a food or beverage manufacturing environment (Registered Food SGB).
- Title 9:** Evaluate the quality of milk in terms of its freezing point (Registered Dairy SGB).
- Title 10:** Evaluate the quality of raw milk in terms of its microbial load, as indicated by the resazurin test (Registered Dairy SGB).
- Title 11:** Evaluate the quality of a fruit juice, fruit juice concentrate or fruit-milk mixture, as indicated by its Brix-acid ratio (Registered Dairy SGB).
- Title 12:** Evaluate the quality of a food product in terms of its Brix-value (Registered Dairy SGB).

- Title 13:** Evaluate the efficiency of homogenisation of a liquid dairy product, as indicated by the homogenisation index (Registered Dairy SGB).
- Title 14:** Evaluate the quality of a food product in terms of its fat content as indicated by the Mojonnier fat determination method (Registered Dairy SGB).
- Title 15:** Evaluate the quality of a dairy powder in terms of its moisture content, as indicated by the Toluene Distillation Method (Registered Dairy SGB).
- Title 16:** Evaluate the quality of instant milk powder in terms of its dispersibility (Registered Dairy SGB).
- Title 17:** Evaluate the quality of a dairy powder in terms of its bulk density (Registered Dairy SGB).
- Title 18:** Evaluate the quality of cream in terms of its fat content, as indicated by the Babcock fat determination method (Registered Dairy SGB).
- Title 19:** Evaluate the fat-, salt-, moisture- and solids-non-fat content of butter as indicated by the Kohman test (Registered Dairy SGB).
- Title 20:** Evaluate the quality of a food product in terms of its moisture content using the oven drying method (Registered Dairy SGB).
- Title 21:** Evaluate the activity of a starter culture in terms of its pH or % titratable acidity (Registered Dairy SGB).
- Title 22:** Evaluate the quality of a food product in terms of its viscosity (Registered Dairy SGB).
- Title 23:** Evaluate the composition of raw milk as determined by an infra-red analyser (Registered Dairy SGB).
- Title 24:** Evaluate the quality of cheese in terms of its salt content (Registered Dairy SGB).
- Title 25:** Accommodate audience and context needs in oral communication (Registered NSB 04).
- Title 26:** Interpret and use information from texts (Registered NSB 04).
- Title 27:** Write texts for a range of communicative context (Registered NSB 04).
- Title 28:** Use language and communication in an occupational learning programmes (Registered NSB 04).
- Title 29:** Produce and use spreadsheets for business (Registered NSB 10).
- Title 30:** Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways (Registered NSB 10).
- Title 31:** Use mathematics to investigate and monitor the financial aspects of personal, business and national issues (Registered NSB 10).
- Title 32:** Work with a range of patterns of basic functions and solve related problems (Registered NSB 10).
- Title 33:** Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts. (Registered NSB 10)
- Title 34:** Demonstrate knowledge of chemistry principles (Sourced from NSB 10)

#### UNIT STANDARDS AT NQF LEVEL 4

- Title 1:** Demonstrate an understanding of the relationship between micro-organisms and food spoilage (Registered Food SGB).
- Title 2:** Evaluate the extent of saturation of butterfat (in cream or butter) as indicated by its iodine

value (Registered Dairy SGB).

- Title 3:** Evaluate the compositional and sensory quality of butter (Registered Dairy SGB).
- Title 4:** Evaluate the compositional and sensory quality of cheese (Registered Dairy SGB).
- Title 5:** Evaluate the compositional and sensory quality of dried dairy products (Registered Dairy SGB).
- Title 6:** Evaluate the compositional and sensory quality of frozen dairy ice cream or ice cream related products (Registered Dairy SGB).
- Title 7:** Evaluate the compositional and sensory quality of fermented dairy products (Registered Dairy SGB).
- Title 8:** Evaluate the compositional and sensory quality of cottage cheese products (Registered Dairy SGB).
- Title 9:** Evaluate the compositional and sensory quality of liquid long life dairy products (Registered Dairy SGB).
- Title 10:** Evaluate the compositional and sensory quality of condensed milk products (Registered Dairy SGB).
- Title 11:** Evaluate the compositional and sensory quality of process cheese (Registered Dairy SGB).
- Title 12:** Evaluate the microbiological quality of a food product as indicated by the test for *Salmonella* (Registered Dairy SGB).
- Title 13:** Evaluate the microbiological quality of a food product as indicated by the test for *Staphylococcus aureus* (Registered Dairy SGB).
- Title 14:** Demonstrate knowledge of the functional components of milk (Registered Dairy SGB).



**Unit Standards and Specific Outcomes For National Certificate In Food Laboratory Practices: Dairy Laboratory Analyst NQF 3**

**UNIT STANDARDS AT NQF LEVEL 3**

**1. TITLE:                   APPLY MICROBIOLOGICAL PRINCIPLES IN A FOOD OR BEVERAGE ENVIRONMENT.**

**Specific outcome 1.1:**    Demonstrate knowledge of the occurrence of micro-organisms in a food or beverage environment.

**Specific outcome 1.2:**    Demonstrate knowledge of the preventative methods and procedures for microbial growth in a food or beverage environment.

**Specific outcome 1.3:**    Maintain microbiological food safety procedures and practices in a food or beverage environment.

No. 969

3 October 2001

**National Certificate in Food and Beverages Processing: Dairy Primary Processing NQF 3**

**Field:** Manufacturing, Engineering and Technology - NSB 06  
**Sub-field:** Manufacturing and Assembly  
**Level:** 3  
**Credit:** 130

**Issue date:**

**Review date:**

**Rationale of the qualification**

This qualification reflects the workplace-based needs of the dairy industry that are expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within the dairy industry, including the small, medium and micro enterprise environment. This qualification provides the learner with the flexibility to pursue a dairy processing and manufacturing career with a wide variety of specialisation options and articulation within the food manufacturing industry.

The level of flexibility within the range of electives will allow the individual to pursue a career within dairy primary processing, quality control and assurance or packaging.

**Purpose of the qualification**

A person acquiring this qualification will be able to produce pasteurised liquid milk, cream or fruit-milk mixtures from quality raw materials by operating and controlling an automated or semi-automated dairy primary processing line. These products will be safe for human consumption, quality assured and complying with minimum legislation.

This qualification will allow a person to advance to learning for a dairy manufacturing technology qualification at NQF level 4. The core and fundamental unit standards in the qualification enable the person to pursue an NQF level 3 qualification within the food or beverage environment.

The packaging unit standards provide credits that can be carried over to a food and beverage packaging qualification at NQF level 3. The unit standards on laboratory analysis provide credits that can be carried over to the National Certificate in Food and Beverages Quality Control and Assurance Practices: Dairy Laboratory Analyst at NQF level 3.

**Access to the Qualification**

Open access

**Learning assumed to be in place**

A knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 1 and 2.

**Exit level Outcomes**

Qualifying learners can:

Exit level 1: Apply fundamental milk processing technologies.

**Associated Assessment Criteria**

- Knowledge and comprehension regarding heating and cooling procedures for primary processing of milk is applied according to standard dairy principles,
- Milk is pasteurised according to standard operating procedures,
- Cream is separated according to standard operating procedures,
- Milk is standardised according to standard operating procedures,
- Raw milk in a silo is analysed and evaluated in terms of acceptability for further processing,
- Quality control practices for the primary processing of milk is monitored and controlled according to standard operating procedures,
- The processing system is cleaned and sanitised by means of a cleaning-in-place system and according to standard operating procedures.
- The processed milk is analysed for composition and sensory attributes,
- The phosphatase test is performed on the processed milk and an evaluation is made on the efficiency of pasteurisation-process.

Exit level 2: Pack processed milk.

**Associated assessment criteria**

- Processed milk is packed into glass or rigid plastic containers, making sure to monitor and control the process closely,
- The packaged product is collated and shrink-wrapped according to standard operating procedures and by using automated equipment.

Exit level 3: Maintain and apply good manufacturing practices during primary processing of milk.

**Associated Assessment Criteria**

- Knowledge and comprehension regarding personal safety practices during primary processing of milk is applied according to standard operating procedures and safety requirements,
- Personal health, hygiene and presentation in a dairy processing environment is maintained according to the Occupational Health and Safety Act,
- Knowledge and comprehension of the effect of micro-organisms on personal health, hygiene and dairy product safety is applied according to standard dairy microbiology principles,
- Processing equipment and surfaces are cleaned and sanitised manually and according to standard operating procedures,
- The relevant occupational health, safety and environmental legislation is understood and comprehended,
- Food safety practices and procedures in a dairy processing environment are understood and comprehended,
- Knowledge and comprehension regarding microbiological principles in a dairy processing environment is applied according to standard dairy microbiology principles.

**International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian, New Zealand and German qualifications. International comparability could be found for a qualification on this level. On the New Zealand Qualifications Authority Framework 2 qualifications could be found to support this

qualification. The qualifications on the New Zealand Qualifications Authority Framework are the National certificate in Dairy Manufacturing level 3 and the National certificate in Food and related processing level 3.

### **Integrated Assessment**

The applied competence (practical, foundational and reflective competencies) of this qualification will be achieved if a candidate is able to produce pasteurised liquid milk, cream or fruit-milk mixtures from quality raw materials by operating and controlling an automated or semi-automated dairy primary processing line. These products must be safe for human consumption, quality assured and complying with minimum legislation.

The identification and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflexive competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The cream separation, standardisation, pasteurisation, homogenisation (if applicable), cleaning and sanitising, ensuring food safety and fist line maintenance can be assessed in one application.

Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment.

A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

### **Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

### **Articulation possibilities**

This qualification will allow a person to advance to learning for a dairy manufacturing technology qualification at NQF level 4. The core and fundamental unit standards in the qualification enable the person to pursue an NQF level 3 qualification within the food or beverage environment.

The packaging unit standards provide credits that can be carried over to a food and beverage packaging qualification at NQF level 3. The unit standards on laboratory analysis provide credits that can be carried over to the National Certificate in Food and Beverages Quality Control and Assurance Practices: Dairy Laboratory Analyst at NQF level 3.

### **Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around

assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.

- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

#### Criteria for registration of assessors

Assessors need experience in the following areas:

Interpersonal skills, subject matter and assessment.

The assessor needs to be competent in the planning and conducting of assessment of learning outcomes and in the design and development of assessments as described in the unit standards **Plan and conduct assessment of learning outcomes NQF level 5**. Subject matter experience must be well developed within the field of dairy primary processing and food safety. The assessor must have completed:

- ☐ a similar qualification with a minimum of 6-12 months field experience after he/she has completed the qualification or,
- ☐ national certificate in Dairy Technology NQF 4 or,
- ☐ food science and technology qualification on level 5 or higher.

The subject matter experience of the assessor can be established by recognition of prior learning.

Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.



**National Certificate in Food and Beverage Processing: Dairy Primary Processing NQF 3**

**130 credits**

<b>Fundamental</b>	<b>L</b>	<b>Cr</b>	<b>Core</b>	<b>L</b>	<b>Cr</b>
<b>Field of Communication and Language</b>			Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment.	2	4
Accommodate audience and context needs in oral communication.	3	5	Mix or blend food raw materials for processing using automated equipment.	2	4
Interpret and use information from texts.	3	5	Clean and sanitise a food processing system using an automated cleaning-in-place system.	2	5
Write texts for a range of communicative context.	3	5	Demonstrate an understanding of heating and cooling procedures.	3	4
Use language and communications in an occupational learning programmes.	3	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.	3	7
<b>Field of Physical, Mathematical, Computer and Life Sciences</b>			Pasteurise or thermise a liquid food product by means of a plate or tubular heat exchanger.	3	8
Produce and use spreadsheets for business.	3	5	Apply microbiological principles in a food or beverage environment.	3	6
Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways	3	2	Separate cream from milk or whey by means of a cream separator.	3	5
Use mathematics to investigate and monitor the financial aspects of personal, business and national issues	3	2	Evaluate the acceptability of raw milk in a silo for further processing.	3	5
Work with a wide range of patterns and basic functions and solve related problems	3	3	Monitor and control quality assurance practices in a food or beverage manufacturing environment.	3	4
Describe, apply, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts	3	4	Standardise the fat content of a liquid dairy product.	3	7
			Evaluate the efficiency of milk or cream pasteurisation, as indicated by the phosphatase test.	3	4
			Evaluate the sensory quality of pasteurised milk.	3	5
			Apply first line maintenance on food or beverage processing equipment.	3	10
<b>Total available credits</b>		<b>36</b>	<b>Total available credits</b>		<b>78</b>

<b>Electives (Choose a minimum of 16 credits)</b>	<b>Level</b>	<b>Credits</b>
Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food or beverage products.	2	10
Operate and control the forming, filling and hermetic sealing of gable top or brick type cartons for food or beverage products.	2	12
Collate and shrink-wrap packaged products using automated wrapping equipment.	2	4
Operate and control the filling and closing of glass or rigid plastic containers for food or beverage products.	2	10
Homogenise a liquid dairy product.	3	4
Evaluate the efficiency of homogenisation of a liquid dairy product as indicated by the homogenisation index.	3	2
Evaluate the quality of a fruit juice, fruit juice concentrate or fruit-milk mixture, as indicated by its Brix-acid ratio.	3	2
Clarify or bacto-fuge milk by centrifugal force.	3	5
Demonstrate an understanding of introductory business principles.	3	4
Demonstrate an understanding of supply chain management.	3	3

**UNIT STANDARDS IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGE PROCESSING:  
RAW MILK AND CREAM HANDLING AND STORING NQF 2****UNIT STANDARDS ON NQF LEVEL 2**

- Title 1:** Clean and sanitise a food processing system using an automated cleaning-in-place system (Registered, Food SGB).
- Title 2:** Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment (Registered, Food SGB).
- Title 3:** Mix or blend food raw materials for processing using automated equipment (Registered, Food SGB).
- Title 4:** Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food or beverage products (Registered, Dairy SGB).
- Title 5:** Operate and control the forming, filling and hermetic sealing of gable top or brick type cartons for food or beverage products (Registered, Dairy SGB).
- Title 6:** Collate and shrink-wrap packaged products using automated wrapping equipment (Registered, Dairy SGB).
- Title 7:** Operate and control the filling and closing of glass or rigid plastic containers for food or beverage products (Registered, Dairy SGB).

**UNIT STANDARDS ON NQF LEVEL 3**

- Title 1:** Apply microbiological principles in a food or beverage environment (To be registered, Dairy SGB).
- Title 2:** Demonstrate an understanding of heating and cooling procedures (Registered, Food SGB).
- Title 3:** Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment (Registered, Food SGB).
- Title 4:** Pasteurise or thermise a liquid food product by means of a plate or tubular heat exchanger (Registered, Dairy SGB).
- Title 5:** Separate cream from milk or whey by means of a cream separator (Registered, Dairy SGB).
- Title 6:** Evaluate the acceptability of raw milk in a silo for further processing (Registered, Dairy SGB).
- Title 7:** Monitor and control quality assurance practices in a food or beverage manufacturing environment (Registered, Food SGB).
- Title 8:** Standardise the fat content of a liquid dairy product (Registered, Dairy SGB).
- Title 9:** Evaluate the efficiency of milk or cream pasteurisation, as indicated by the phosphatase test (Registered, Dairy SGB).
- Title 10:** Evaluate the sensory quality of pasteurised milk (Registered, Dairy SGB).
- Title 11:** Apply first line maintenance on food or beverage processing equipment (To be sourced from NSB 06).
- Title 12:** Homogenise a liquid dairy product (Registered, Dairy SGB).

- Title 13:** Evaluate the efficiency of homogenisation of a liquid dairy product as indicated by the homogenisation index (Registered, Dairy SGB).
- Title 14:** Evaluate the quality of a fruit juice, fruit juice concentrate or fruit-milk mixture, as indicated by its Brix-acid ratio (Registered, Dairy SGB).
- Title 15:** Clarify or bacto-fuge milk by centrifugal force (Registered, Dairy SGB).
- Title 16:** Demonstrate an understanding of introductory business principles (To be sourced from NSB 03).
- Title 17:** Demonstrate an understanding of supply chain management (To be sourced from NSB 11).
- Title 18:** Accommodate audience and context needs in oral communication (Registered, NSB 04).
- Title 19:** Interpret and use information from texts (Registered, NSB 04).
- Title 20:** Write texts for a range of communicative context (Registered, NSB 04).
- Title 21:** Use language and communication in an occupational learning programmes (Registered, NSB 04).
- Title 22:** Produce and use spreadsheets for business (Registered, NSB 10).
- Title 23:** Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways (Registered, NSB 10).
- Title 24:** Use mathematics to investigate and monitor the financial aspects of personal, business and national issues (Registered, NSB 10).
- Title 25:** Work with a wide range of patterns and basic functions and solve related problems (Registered, NSB 10).
- Title 26:** Describe, apply, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts (Registered, NSB 10).

**Unit Standards and Specific Outcomes for National Certificate in Food and Beverage Processing:  
Dairy Primary Processing NQF 3****UNIT STANDARDS AT NQF LEVEL 3**

**1. TITLE:** Apply microbiological principles in a food or beverage environment.

**Specific outcome 1.1:** Demonstrate knowledge of the occurrence of micro-organisms in a food or beverage environment.

**Specific outcome 1.2:** Demonstrate knowledge of the preventative methods and procedures for microbial growth in a food or beverage environment.

**Specific outcome 1.3:** Maintain microbiological food safety procedures and practices in a food or beverage environment.

No. 970

3 October 2001

**National Certificate in Food and Beverage Manufacturing Technology: Sweetened Condensed Milk Products Technologist NQF 4**

**Field:** Manufacturing, Engineering and Technology - NSB 06  
**Sub-field:** Manufacturing and Assembly  
**Level:** 4  
**Credit:** 150  
**Issue date:**  
**Review date:**

**Rationale of the qualification**

This qualification reflects the workplace-based needs of the dairy industry that are expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within the dairy industry and provides the flexibility to articulate in the dairy manufacturing environment with a wide variety of specialisation options and articulation within the food manufacturing industry.

The level of flexibility within the range of electives will allow the individual to pursue a career within specialised dairy manufacturing, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

**Purpose of the qualification**

A person acquiring this qualification will be able to manufacture safe, quality assured and packaged sweetened condensed milk products by operating, controlling and maintaining a sweetened condensed milk product manufacturing line, from raw materials until the final manufactured product is ready to be sold in the retail market.

**Access to the Qualification**

Open access.

**Learning assumed to be in place**

Knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 3 and a national certificate in food and beverage processing: dairy primary processing NQF level 3.

**Exit level Outcomes**

Qualifying learners can:



Exit level 1: Evaporate of liquid dairy based mixture.

**Associated Assessment Criteria**

- Raw milk in a silo is sampled, analysed and evaluated in terms of its acceptability for sweetened condensed milk manufacturing.
- The importance of micro-organisms in the manufacturing of sweetened condensed milk is understood and comprehended.
- The functional components of milk are identified and their application in sweetened condensed milk manufacturing is understood and comprehended.
- Food raw materials used for sweetened condensed milk are mixed and blended for processing according to standard operating procedures.
- Evaporate a liquid dairy based mixture using a falling or rising film evaporator according to standard operating procedures.

Exit level 2: Manufacture sweetened condensed milk.

**Associated Assessment Criteria**

- Evaporated or concentrated dairy based mixture is crystallised for sweetened condensed milk manufacturing according to standard operating procedures.
- Sweetened condensed milk is sampled and analysed for compositional and sensory quality attributes, and an evaluation is made in terms of its conformance to legal and company standards.

Exit level 3: Pack sweetened condensed milk

**Associated Assessment Criteria**

- Sweetened condensed milk is packed in suitable containers and the packaging process line is operated and controlled according to standard operating procedures.
- The packaged products is collated and shrink-wrapped according to standard operating procedures and by using automated equipment.

**International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian, New Zealand and German qualifications. International comparability could be found for a qualification on this level. On the New Zealand Qualifications Authority Framework, two qualifications could be found to support this qualification. These qualifications are the National certificate in Dairy Manufacturing at level 4 and a National certificate in Food and related processing also at level 4.

**Integrated Assessment**

The applied competence (practical, foundational and reflective competencies) of this qualification will be able to manufacture safe, quality assured and packaged sweetened condensed milk products by operating, controlling and maintaining a sweetened condensed milk product manufacturing line, from raw materials until the final manufactured product is ready to be sold in the retail market.

The identification and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any

combination of practical, foundational and reflective competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation to processing, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application.

Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment.

A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

### **Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

### **Articulation possibilities**

This qualification will enable the qualifying learner to articulate to other dairy manufacturing specialisation domains at NQF level 4 and will allow progress to the national diploma in food and beverage manufacturing management at NQF level 6, the certificate in food and beverage manufacturing supervision at NQF level 4 and the certificate in food and beverage process artisan at NQF level 4.

### **Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation, in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

### **Criteria for registration of assessors**

Assessors need experience in the following areas:

Interpersonal skills, subject matter and assessment.

The assessor needs to be competent in the planning and conducting of assessment of learning outcomes and in the design and development of assessments as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5. Subject matter experience must be well developed within the field of sweetened condensed milk products manufacturing. The assessor must have completed a similar qualification with a minimum of 6-12 months field experience after he/she has completed the qualification or a food science and technology qualification on level 5 or higher. The subject matter experience of the assessor can be established by recognition of prior learning.

Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.

**National Certificate in Food and Beverage Manufacturing Technology: Sweetened Condensed Milk Products Technologist NQF 4 130 credits**

<b>Fundamental</b>	<b>L</b>	<b>Cr</b>	<b>Core</b>	<b>Level</b>	<b>Credits</b>
<b>Field of Communication and Language</b>			Evaluate the acceptability of raw milk in a silo for further processing.	3	5
Engage in sustained oral communication and evaluate spoken texts.	4	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.	3	7
Read, analyse and respond to a variety of texts.	4	5	Control lactose crystallisation in sweetened condensed milk or concentrated whey.	3	8
Write for a wide range of contexts.	4	5	Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products.	4	8
Use language and communication in occupational learning programmes.	4	5	Demonstrate knowledge of the functional components of milk.	4	7
<b>Field of Physical, Mathematical, Computer and Life Sciences</b>			Evaporate a liquid food product using a falling or rising film evaporator.	4	20
Apply knowledge of sequences and series to interpret and solve problems in real and simulated situations	4	2	Evaluate the compositional and sensory quality of condensed milk products.	4	5
Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues	4	2			
Work with a wide range of patterns and transformations of functions and solve related problems	4	3			
Construct, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts	4	4			
Apply knowledge of statistics and probability to evaluate and communicate findings on life-related problems	4	5			
<b>Total available credits</b>		<b>36</b>	<b>Total available credits</b>		<b>60</b>

<b>Electives Choose a minimum of 34 credits</b>	<b>L</b>	<b>Cr</b>
Operate and control the filling and seaming of cans for food products.	2	12
Mix or blend food raw materials for processing using automated equipment.	2	4
Collate and shrink-wrap packaged products using automated wrapping equipment.	2	4
Apply first line maintenance on food or beverage processing equipment.	3	10
Operate and control the aseptic forming, filling, and sealing of containers for food products.	3	18
Implement and maintain a food or beverage production quality assurance system.	4	8
Demonstrate knowledge of financial principles.	4	7
Demonstrate knowledge of industrial relationship principles and legislation	4	4

**UNIT STANDARDS IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGE MANUFACTURING TECHNOLOGY: SWEETENED CONDENSED MILK PRODUCTS TECHNOLOGIST NQF 4****UNIT STANDARDS ON NQF LEVEL 2**

- Title 1:** Mix or blend food raw materials for processing using automated equipment (Registered Food SGB).
- Title 2:** Operate and control the filling and seaming of cans for food or beverage products (Registered Dairy SGB).
- Title 3:** Collate and shrink-wrap packaged products using automated wrapping equipment (Registered Dairy SGB).

**UNIT STANDARDS ON NQF LEVEL 3**

- Title 1:** Evaluate the acceptability of raw milk in a silo for further processing (Registered, Dairy SGB).
- Title 2:** Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment (Registered, Food SGB).
- Title 3:** Apply first line maintenance on food or beverage processing equipment (To be sourced from NSB 06).
- Title 4:** Operate and control the aseptic forming, filling and sealing of containers for food or beverage products (Registered, Dairy SGB).
- Title 5:** Control lactose crystallisation in sweetened condensed milk or concentrated whey. (Registered, Dairy SGB).

**UNIT STANDARDS AT NQF LEVEL 4**

- Title 1:** Implement and maintain a food or beverage quality assurance system (To be registered, Food SGB).
- Title 2:** Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products (Registered, Dairy SGB).
- Title 3:** Demonstrate knowledge of the functional components of milk (Registered, Dairy SGB).
- Title 4:** Evaporate a liquid food product using a falling or rising film evaporator (Registered, Dairy SGB).
- Title 5:** Evaluate the compositional and sensory quality of condensed milk products (Registered, Dairy SGB).
- Title 6:** Demonstrate knowledge of financial principles (To be sourced from NSB 03).
- Title 7:** Demonstrate knowledge of industrial relationship principles and legislation (To be sourced from NSB 08).
- Title 8:** Engage in sustained oral communication and evaluate spoken texts (Registered, NSB 04).
- Title 9:** Read, analyse and respond to a variety of texts (Registered, NSB 04).
- Title 10:** Write for a wide range of contexts (Registered, NSB 04).
- Title 11:** Use language and communication in occupational learning programmes (Registered, NSB



- 04).
- Title 12:** Apply knowledge of sequences and series to interpret and solve problems in real and simulated situations (Registered, NSB 10).
- Title 13:** Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues (Registered, NSB 10).
- Title 14:** Work with a wide range of patterns and transformations of functions and solve related problems (Registered, NSB 10).
- Title 15:** Construct, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts (Registered, NSB 10).
- Title 16:** Apply knowledge of statistics and probability to evaluate and communicate findings on life-related problems (Registered, NSB 10).

No. 971

3 October 2001

**National Certificate in Food and Beverage Manufacturing Technology: Ripened Cheese  
Technologist NQF 4**

**Field:** Manufacturing, Engineering and Technology - NSB 06

**Sub-field:** Manufacturing and Assembly

**Level:** 4

**Credit:** 130

**Issue date:**

**Review date:**

**Rationale of the qualification**

This qualification reflects the workplace-based needs of the dairy industry that are expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within the dairy industry and provides the flexibility to articulate in the dairy manufacturing environment with a wide variety of specialisation options and articulation within the food manufacturing industry.

The level of flexibility within the range of electives will allow the individual to pursue a career within specialised dairy manufacturing, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

**Purpose of the qualification**

A person acquiring this qualification will be able to manufacture safe, quality assured and packaged ripened cheese products by operating, controlling and maintaining a ripened cheese manufacturing line, from raw materials until the final manufactured product is ready to be sold in the retail market.

**Access to the Qualification**

Open access.

**Learning assumed to be in place**

Knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 3 and a national certificate in food and beverage processing: dairy primary processing NQF level 3.

**Exit level Outcomes**

Qualifying learners can:

Exit level 1: Coagulate milk for cheese manufacturing.

**Associated Assessment Criteria**

- Raw milk in a silo is sampled, analysed and evaluated in terms of its acceptability for cheese manufacturing.
- The importance of microorganisms in the manufacturing of ripened cheese is understood and comprehended.
- The functional components of milk are identified and their application in cheese manufacturing is understood and comprehended.
- The connection between milk components, syneresis and moisture control in cheese curd is understood and comprehended.
- Milk is coagulated for cheese manufacturing according to standard operating procedures.

Exit level 2: Manufacture ripened Cheddar type cheese.

**Associated Assessment Criteria**

- Green Cheddar type cheese is manufactured from coagulated milk according to standard operating procedures.
- Cheddar type cheese is ripened according to standard operating procedures.
- Cheddar type cheese is sampled and analysed for compositional and sensory quality attributes, and an evaluation is made in terms of its conformance to legal and company standards.

Exit level 3: Manufacture ripened Gouda or Grana type cheese.

**Associated Assessment Criteria**

- Green Gouda or Grana type cheese is manufactured from coagulated milk according to standard operating procedures.
- Gouda or Grana type cheese is ripened according to standard operating procedures.
- Gouda or Grana type cheese is sampled and analysed for compositional and sensory quality attributes, and an evaluation is made in terms of its conformance to legal and company standards.

Exit level 4: Manufacture ripened Mozzarella type cheese.

**Associated Assessment Criteria**

- Green Mozzarella type cheese is manufactured from coagulated milk according to standard operating procedures.
- Mozzarella type cheese is ripened according to standard operating procedures.
- Mozzarella type cheese is sampled and analysed for compositional and sensory quality attributes, and an evaluation is made in terms of its conformance to legal and company standards.

Exit level 5: Manufacture a starter culture for the manufacturing of ripened cheese.

**Associated Assessment Criteria**

- A bulk starter culture is prepared for the manufacturing of ripened cheese according to standard operating procedures.
- The activity of the prepared bulk starter culture is determined according to standard operating procedures and an evaluation is made in terms of its suitability for use.
- The importance of microorganisms in the manufacturing of bulk starter cultures is understood and comprehended.

**International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian, New Zealand and German qualifications. International comparability could be found for a qualification on this level. On the New Zealand Qualifications Authority Framework, two qualifications could be found to support this qualification. These qualifications are the National certificate in Dairy Manufacturing at level 4 and a National certificate in Food and related processing also at level 4.

**Integrated Assessment**

The applied competence (practical, foundational and reflective competencies) of this qualification will be achieved if a candidate is able to manufacture safe, quality assured and packaged ripened cheese products by operating, controlling and maintaining a ripened cheese manufacturing line, from raw materials until the final manufactured product is ready to be sold in the retail market.

The identification and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflective competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation to processing, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application.

Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment.

A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

**Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

**Articulation possibilities**

This qualification will enable the qualifying learner to articulate to other dairy manufacturing specialisation domains at NQF level 4 and will allow progress to the national diploma in food and beverage manufacturing management at NQF level 6, the certificate in food and beverage manufacturing supervision at NQF level 4 and the certificate in food and beverage process artisan at NQF level 4.

**Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.

- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

#### **Criteria for registration of assessors**

Assessors need experience in the following areas:

Interpersonal skills, subject matter and assessment.

The assessor needs to be competent in the planning and conducting of assessment of learning outcomes and in the design and development of assessments as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5. Subject matter experience must be well developed within the field of ripened cheese manufacturing. The assessor must have completed a similar qualification with a minimum of 6-12 months field experience after he/she has completed the qualification or a food science and technology qualification on level 5 or higher. The subject matter experience of the assessor can be established by recognition of prior learning.

Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.



National Certificate in Food and Beverage Manufacturing Technology: Ripened Cheese Technologist NQF 4				130 credits	
Fundamental	Level	Credits	Core	Level	Credits
<b>Field of Communication and Language</b>					
Engage in sustained oral communication and evaluate spoken texts.	4	5	Evaluate the acceptability of raw milk in a silo for further processing.	3	5
Read, analyse and respond to a variety of texts.	4	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.	3	7
Write for a wide range of contexts.	4	5	Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products.	4	8
Use language and communication in occupational learning programmes.	4	5	Demonstrate knowledge of the functional components of milk.	4	7
<b>Field of Physical, Mathematical, Computer and Life Sciences</b>			Demonstrate knowledge of the connection between milk constituents, syneresis and moisture control in cheese curd.	4	3
Apply knowledge of sequences and series to interpret and solve problems in real and simulated situations	4	2	Coagulate milk for cheese manufacturing.	4	5
Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues	4	2	Evaluate the compositional and sensory quality of cheese.	4	8
Work with a wide range of patterns and transformations of functions and solve related problems	4	3			
Construct, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts	4	4			
Apply knowledge of statistics and probability to evaluate and communicate findings on life-related problems	4	5			
<b>Available credits on level 4</b>		<b>36</b>	<b>Available credits on level 4</b>		<b>31</b>
<b>Total available credits</b>		<b>36</b>	<b>Total available credits</b>		<b>43</b>

<b>Electives Choose a minimum of 51 credits (5 credits of the 51 must be on level 4)</b>	<b>L</b>	<b>Cr</b>
Pack a food product under vacuum.	1	1
Paint and wax cheese.	1	1
Apply first line maintenance on food or beverage processing equipment.	3	10
Clarify or bacto-fuge milk by centrifugal force.	3	5
Manufacture a green Cheddar type cheese from coagulated milk.	4	30
Manufacture a green Gouda or Grana type cheese from coagulated milk.	4	30
Manufacture a green Mozzarella type cheese from coagulated milk.	4	30
Prepare a bulk starter culture for the manufacturing of fermented dairy products or cheese.	4	8
Implement and maintain a food or beverage production quality assurance system.	4	8
Demonstrate knowledge of financial principles.	4	7
Demonstrate knowledge of industrial relationship principles and legislation.	4	4

**UNIT STANDARDS IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGE  
MANUFACTURING TECHNOLOGY: RIPENED CHEESE TECHNOLOGIST NQF 4****UNIT STANDARDS ON NQF LEVEL 1**

**Title 1:** Pack a food product under vacuum (Registered, Dairy SGB).

**Title 2:** Paint and wax cheese (Registered, Dairy SGB).

**UNIT STANDARDS ON NQF LEVEL 3**

**Title 1:** Evaluate the acceptability of raw milk in a silo for further processing (Registered, Dairy SGB).

**Title 2:** Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment (Registered, Food SGB).

**Title 3:** Apply first line maintenance on food or beverage processing equipment (To be sourced from NSB 06).

**Title 4:** Clarify or bacto-fuge milk by centrifugal force (Registered, Dairy SGB).

**UNIT STANDARDS AT NQF LEVEL 4**

**Title 1:** Implement and maintain a food or beverage production quality assurance system (To be registered, Food SGB).

**Title 2:** Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products (Registered, Dairy SGB).

**Title 3:** Demonstrate knowledge of the functional components of milk (Registered, Dairy SGB).

**Title 4:** Demonstrate knowledge of the connection between milk constituents, syneresis and moisture control in cheese curd (Registered, Dairy SGB).

**Title 5:** Coagulate milk for cheese manufacturing (Registered, Dairy SGB).

**Title 6:** Evaluate the compositional and sensory quality of cheese (Registered, Dairy SGB).

**Title 7:** Manufacture a green Cheddar type cheese from coagulated milk (Registered, Dairy SGB).

**Title 8:** Manufacture a green Gouda or Grana type cheese from coagulated milk (Registered, Dairy SGB).

**Title 9:** Manufacture a green Mozzarella type cheese from coagulated milk (Registered, Dairy SGB).

**Title 10:** Prepare a bulk starter culture for the manufacturing of fermented dairy products or cheese (Registered, Dairy SGB).

**Title 11:** Demonstrate knowledge of financial principles (To be sourced from NSB 03).

**Title 12:** Demonstrate knowledge of industrial relationship principles and legislation (To be sourced from NSB 08).

- Title 13:** Engage in sustained oral communication and evaluate spoken texts (Registered, NSB 04).
- Title 14:** Read, analyse and respond to a variety of texts (Registered, NSB 04).
- Title 15:** Write for a wide range of contexts (Registered, NSB 04).
- Title 16:** Use language and communication in occupational learning programmes (Registered, NSB 04).
- Title 17:** Apply knowledge of sequences and series to interpret and solve problems in real and simulated situations (Registered, NSB 10).
- Title 18:** Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues (Registered, NSB 10).
- Title 19:** Work with a wide range of patterns and transformations of functions and solve related problems (Registered, NSB 10).
- Title 20:** Construct, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts (Registered, NSB 10).
- Title 21:** Apply knowledge of statistics and probability to evaluate and communicate findings on life-related problems (Registered, NSB 10).

No. 972

3 October 2001

**National Certificate in Food and Beverage Manufacturing Technology: Cottage Cheese Technologist NQF 4**

**Field:** Manufacturing, Engineering and Technology - NSB 06  
**Sub-field:** Manufacturing and Assembly  
**Level:** 4  
**Credit:** 130  
**Issue date:**  
**Review date:**

**Rationale of the qualification**

This qualification reflects the workplace-based needs of the dairy industry that are expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within the dairy industry and provides the flexibility to articulate in the dairy manufacturing environment with a wide variety of specialisation options and articulation within the food manufacturing industry.

The level of flexibility within the range of electives will allow the individual to pursue a career within specialised dairy manufacturing, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

**Purpose of the qualification**

A person acquiring this qualification will be able to manufacture safe, quality assured and packaged cottage cheese products by operating, controlling and maintaining a fermented dairy manufacturing line, from raw materials until the final manufactured product is ready to be sold in the retail market.

**Access to the Qualification**

Open access.

**Learning assumed to be in place**

A person acquiring this qualification will be able to manufacture safe, quality assured and packaged cottage cheese products by operating, controlling and maintaining a fermented dairy manufacturing line, from raw materials until the final manufactured product is ready to be sold in the retail market.

**Exit level Outcomes**

Qualifying learners can:

Exit level 1: Pack cottage cheese in rigid plastic containers.

**Associated Assessment Criteria**

- Cottage cheese is packed into rigid plastic containers, making sure to monitor and control the process closely.
- The packaged product is collated and shrink-wrapped according to standard operating procedures and by using automated equipment.

Exit level 2: Coagulate milk for cottage cheese manufacturing.

**Associated Assessment Criteria**

- Raw milk in a silo is sampled, analysed and evaluated in terms of its acceptability for cottage cheese manufacturing.
- The importance of microorganisms in the manufacturing of cottage cheese is understood and comprehended.
- The functional components of milk are identified and their application in cottage cheese manufacturing is understood and comprehended.
- The connection between milk components, syneresis and moisture control in cottage cheese curd is understood and comprehended.
- Milk is coagulated for cottage cheese manufacturing according to standard operating procedures.

Exit level 3: Manufacture chunky cottage cheese.

**Associated Assessment Criteria**

- Chunky cottage is manufactured from coagulated milk according to standard operating procedures.
- Chunky cottage cheese is sampled and analysed for compositional and sensory quality attributes, and an evaluation is made in terms of its conformance to legal and company standards.

Exit level 4: Manufacture smooth cottage cheese.

**Associated Assessment Criteria**

- Smooth cottage cheese is manufactured from coagulated milk according to standard operating procedures.
- Smooth cottage cheese is sampled and analysed for compositional and sensory quality attributes, and an evaluation is made in terms of its conformance to legal and company standards.

Exit level 5: Manufacture a starter culture for the manufacturing of cottage cheese.

**Associated Assessment Criteria**

- A bulk starter culture is prepared for the manufacturing of cottage cheese according to standard operating procedures.
- The activity of the prepared bulk starter culture is determined according to standard operating procedures and an evaluation is made in terms of its suitability for use.



- The importance of microorganisms in the manufacturing of bulk starter cultures is understood and comprehended.

### **International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian, New Zealand and German qualifications. International comparability could be found for a qualification on this level. On the New Zealand Qualifications Authority Framework, two qualifications could be found to support this qualification. These qualifications are the National certificate in Dairy Manufacturing at level 4 and a National certificate in Food and related processing also at level 4.

### **Integrated Assessment**

The applied competence (practical, foundational and reflective competencies) of this qualification will be achieved if a candidate is able to manufacture safe, quality assured and packaged cottage cheese products by operating, controlling and maintaining a fermented dairy manufacturing line, from raw materials until the final manufactured product is ready to be sold in the retail market.

The identification and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflective competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation to processing, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application.

Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment. A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

### **Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

### **Articulation possibilities**

This qualification will enable the qualifying learner to articulate to other dairy manufacturing specialisation domains at NQF level 4 and will allow progress to the national diploma in food and beverage manufacturing management at NQF level 6, the certificate in food and beverage manufacturing supervision at NQF level 4 and the certificate in food and beverage process artisan at NQF level 4.

### **Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around

assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.

- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

#### **Criteria for registration of assessors**

Assessors need experience in the following areas:

Interpersonal skills, subject matter and assessment.

The assessor needs to be competent in the planning and conducting of assessment of learning outcomes and in the design and development of assessments as described in the unit standards **Plan and conduct assessment of learning outcomes NQF level 5**. Subject matter experience must be well developed within the field of cottage cheese manufacturing. The assessor must have completed a similar qualification with a minimum of 6-12 months field experience after he/she has completed the qualification or a food science and technology qualification on level 5 or higher. The subject matter experience of the assessor can be established by recognition of prior learning.

Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.

# National Certificate in Food and Beverage Manufacturing Technology: Cottage Cheese Technologist NQF 4

130 credits

Fundamental			Core		
Field of Communication and Language					
Engage in sustained oral communication and evaluate spoken texts.	4	5	Evaluate the acceptability of raw milk in a silo for further processing.	3	5
Read, analyse and respond to a variety of texts.	4	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.	3	7
Write for a wide range of contexts.	4	5	Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products.	4	8
Use language and communication in occupational learning programmes.	4	5	Demonstrate knowledge of the functional components of milk.	4	7
Field of Physical, Mathematical, Computer and Life Sciences					
Apply knowledge of sequences and series to interpret and solve problems in real and simulated situations	4	2	Demonstrate knowledge of the connection between milk constituents, syneresis and moisture control in cheese curd.	4	3
Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues	4	2	Coagulate a dairy mixture for the manufacturing of a fermented dairy product.	4	5
Work with a wide range of patterns and transformations of functions and solve related problems	4	3	Evaluate the compositional and sensory quality of cottage cheese products.	4	5
Construct, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts	4	4			
Apply knowledge of statistics and probability to evaluate and communicate findings on life-related problems	4	5			
Available credits on level 4		36	Available credits on level 4		28
Total available credits		36	Total available credits		40

Electives Choose a minimum of 54 credits (8 credits of the 54 must be on level 4)			L	Cr
Collate and shrink-wrap packaged products using automated wrapping equipment.	2	4		
Operate and control the filling and closing of glass or rigid plastic containers for food or beverage products.	2	10		
Mix or blend food raw materials for processing using automated equipment.	2	4		
Apply first line maintenance on food or beverage processing equipment.	3	10		
Clarify or bacto-fuge milk by centrifugal force.	3	5		
Manufacture chunky cottage cheese from coagulated milk.	4	20		
Manufacture smooth cottage cheese (Quark) from coagulated milk.	4	10		
Prepare a bulk starter culture for the manufacturing of fermented dairy products or cheese.	4	8		
Implement and maintain a food or beverage production quality assurance system.	4	8		
Demonstrate knowledge of financial principles.	4	7		
Demonstrate knowledge of industrial relationship principles and legislation.	4	4		

## **UNIT STANDARDS IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGE MANUFACTURING TECHNOLOGY: RIPENED CHEESE TECHNOLOGIST NQF 4**

### **UNIT STANDARDS ON NQF LEVEL 2**

- Title 1:** Collate and shrink-wrap packaged products using automated wrapping equipment (Registered, Dairy SGB).
- Title 2:** Operate and control the filling and closing of glass or rigid plastic containers for food or beverage products (Registered, Dairy SGB).
- Title 3:** Mix or blend food raw materials for processing using automated equipment (Registered, Food SGB).

### **UNIT STANDARDS ON NQF LEVEL 3**

- Title 1:** Evaluate the acceptability of raw milk in a silo for further processing (Registered, Dairy SGB).
- Title 2:** Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment (Registered, Food SGB).
- Title 3:** Apply first line maintenance on food or beverage processing equipment (To be sourced from NSB 06).
- Title 4:** Clarify or bacto-fuge milk by centrifugal force (Registered, Dairy SGB).

### **UNIT STANDARDS AT NQF LEVEL 4**

- Title 1:** Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products (Registered, Dairy SGB).
- Title 2:** Demonstrate knowledge of the functional components of milk (Registered, Dairy SGB).
- Title 3:** Demonstrate knowledge of the connection between milk constituents, syneresis and moisture control in cheese curd (Registered, Dairy SGB).
- Title 4:** Coagulate a dairy mixture for the manufacturing of a fermented dairy product (Registered, Dairy SGB).
- Title 5:** Evaluate the compositional and sensory quality of cottage cheese products (Registered, Dairy SGB).
- Title 6:** Manufacture chunky cottage cheese from coagulated milk (Registered, Dairy SGB).
- Title 7:** Manufacture smooth cottage cheese (Quark) from coagulated milk (Registered, Dairy SGB).
- Title 8:** Prepare a bulk starter culture for the manufacturing of fermented dairy products or cheese (Registered, Dairy SGB).
- Title 9:** Implement and maintain a food or beverage production quality assurance system (To be registered, Food SGB).
- Title 10:** Demonstrate knowledge of financial principles (To be sourced from NSB 03).

- Title 11:** Demonstrate knowledge of industrial relationship principles and legislation (To be sourced from NSB 08).
- Title 12:** Engage in sustained oral communication and evaluate spoken texts (Registered, NSB 04).
- Title 13:** Read, analyse and respond to a variety of texts (Registered, NSB 04).
- Title 14:** Write for a wide range of contexts (Registered, NSB 04).
- Title 15:** Use language and communication in occupational learning programmes (Registered, NSB 04).
- Title 16:** Apply knowledge of sequences and series to interpret and solve problems in real and simulated situations (Registered, NSB 10).
- Title 17:** Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues (Registered, NSB 10).
- Title 18:** Work with a wide range of patterns and transformations of functions and solve related problems (Registered, NSB 10).
- Title 19:** Construct, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts (Registered, NSB 10).
- Title 20:** Apply knowledge of statistics and probability to evaluate and communicate findings on life-related problems (Registered, NSB 10).



No. 973

3 October 2001

## National Certificate in Food and Beverage Manufacturing Technology: Butter and Butter Related Spreads Technologist NQF 4

**Field:** Manufacturing, Engineering and Technology - NSB 06

**Sub-field:** Manufacturing and Assembly

**Level:** 4

**Credit:** 130

**Issue date:**

**Review date:**

### Rationale of the qualification

This qualification reflects the workplace-based needs of the dairy industry that are expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within the dairy industry and provides the flexibility to articulate in the dairy manufacturing environment with a wide variety of specialisation options and articulation within the food manufacturing industry.

The level of flexibility within the range of electives will allow the individual to pursue a career within specialised dairy manufacturing, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan

### Purpose of the qualification

A person acquiring this qualification will be able to manufacture safe, quality assured and packaged butter or butter related spreads by operating, controlling and maintaining a butter or butter related spread manufacturing line, from raw materials until the final manufactured product is ready to be sold in the retail market.

### Access to the Qualification

Open access.

### Learning assumed to be in place

Knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 3 and a national certificate in food and beverage processing: dairy primary processing NQF level 3.

### Exit level Outcomes

Qualifying learners can:

Exit level 1: Manufacture butter using a batch butter churn.

**Associated Assessment Criteria**

- Raw milk or cream in a silo is sampled, analysed and evaluated in terms of its acceptability for butter manufacturing.
- The importance of micro-organisms in the manufacturing of butter is understood and comprehended.
- The functional components of milk are identified and their application in butter manufacturing is understood and comprehended.
- Butter is manufactured using a batch churn according to standard operating procedures.
- Butter is sampled and analysed for compositional and sensory quality attributes, and an evaluation is made in terms of its conformance to legal and company standards.
- Butter is packed in a brick shape according to standard operating procedures.

Exit level 2: Manufacture butter using a continuous buttermaking machine.

**Associated Assessment Criteria**

- Raw milk or cream in a silo is sampled, analysed and evaluated in terms of its acceptability for butter manufacturing.
- The importance of micro-organisms in the manufacturing of butter is understood and comprehended.
- The functional components of milk are identified and their application in butter manufacturing is understood and comprehended.
- Butter is manufactured using a continuous buttermaking machine according to standard operating procedures.
- Butter is sampled and analysed for compositional and sensory quality attributes, and an evaluation is made in terms of its conformance to legal and company standards.
- Butter is packed in a brick shape according to standard operating procedures.

Exit level 3: Manufacture butter related spreads using a continuous buttermaking machine.

**Associated Assessment Criteria**

- Raw milk or cream in a silo is sampled, analysed and evaluated in terms of its acceptability for butter related spreads manufacturing.
- The importance of micro-organisms in the manufacturing of butter related spreads is understood and comprehended.
- The functional components of milk are identified and their application in butter related spreads manufacturing is understood and comprehended.
- An aqueous and oil emulsion is prepared and processed according to standard operating procedures.
- Butter related spreads are manufactured using a continuous buttermaking machine according to standard operating procedures.
- Butter related spreads are sampled and analysed for compositional and sensory quality attributes, and an evaluation is made in terms of its conformance to legal and company standards.
- Butter related spreads are packed in ridged containers according to standard operating procedures.

**International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian, New Zealand and German qualifications. International comparability could be found for a qualification on this

level. On the New Zealand Qualifications Authority Framework, two qualifications could be found to support this qualification. These qualifications are the National certificate in Dairy Manufacturing at level 4 and a National certificate in Food and related processing also at level 4.

### **Integrated Assessment**

The applied competence (practical, foundational and reflective competencies) of this qualification will be able to manufacture safe, quality assured and packaged butter or butter related spreads by operating, controlling and maintaining a butter or butter related spread manufacturing line, from raw materials until the final manufactured product is ready to be sold in the retail market.

The identification and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflective competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation to processing, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application.

Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment.

A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

### **Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

### **Articulation possibilities**

This qualification will enable the qualifying learner to articulate to other dairy manufacturing specialisation domains at NQF level 4 and will allow progress to the national diploma in food and beverage manufacturing management at NQF level 6, the certificate in food and beverage manufacturing supervision at NQF level 4 and the certificate in food and beverage process artisan at NQF level 4.

### **Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

### **Criteria for registration of assessors**

Assessors need experience in the following areas:

Interpersonal skills, subject matter and assessment.

The assessor needs to be competent in the planning and conducting of assessment of learning outcomes and in the design and development of assessments as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5.

Subject matter experience must be well developed within the field of butter and butter related spreads. The assessor must have completed a similar qualification with a minimum of 6-12 months field experience after he/she has completed the qualification or a food science and technology qualification on level 5 or higher. The subject matter experience of the assessor can be established by recognition of prior learning.

Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.

National Certificate in Food and Beverage Manufacturing Technology: Butter and Butter Related Spreads Technologist NQF 4 130 credits					
	L	Cr	Core	L	Cr
<b>Fundamental</b>				3	5
<b>Field of Communication and Language</b>			Evaluate the acceptability of raw milk in a silo for further processing.	3	7
Engage in sustained oral communication and evaluate spoken texts.	4	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.	4	8
Read, analyse and respond to a variety of texts.	4	5	Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products.	4	7
Write for a wide range of contexts.	4	5	Demonstrate knowledge of the functional components of milk.	4	6
Use language and communication in occupational learning programmes.	4	5	Evaluate the compositional and sensory quality of butter.		
<b>Field of Physical, Mathematical, Computer and Life Sciences</b>					
Apply knowledge of sequences and series to interpret and solve problems in real and simulated situations	4	2			
Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues	4	2			
Work with a wide range of patterns and transformations of functions and solve related problems	4	3			
Construct, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts	4	4			
Apply knowledge of statistics and probability to evaluate and communicate findings on life-related problems	4	5			
Available credits on level 4		36	Available credits on level 4		21
Total available credits		36	Total available credits		33

Electives Choose a minimum of 61 credits (15 credits of the 61 must be on level 4)			L	Cr
Bulk fill and close a food or beverage product in containers.			1	4
Collate and shrink-wrap packaged products using automated wrapping equipment.			2	4
Operate and control the forming and wrapping of a brick or cube shaped food product.			2	10
Operate and control the filling and closing of glass or ridged plastic containers for food or beverage products.			2	10
Apply first line maintenance on food or beverage processing equipment.			3	10
Manufacture butter by means of a batch churn.			4	25
Manufacture butter with a continuous buttermaking machine.			4	25
Prepare and process an aqueous and oil emulsion.			4	15
Implement and maintain a food or beverage production quality assurance system.			4	8
Demonstrate knowledge of industrial relationship principles and legislation.			4	4
Demonstrate knowledge of financial principles.			4	7



**UNIT STANDARDS IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGE MANUFACTURING TECHNOLOGY: BUTTER AND BUTTER RELATED SPREADS TECHNOLOGIST NQF 4****UNIT STANDARDS ON NQF LEVEL 1**

**Title 1:** Bulk fill and close food or beverage products in containers (To be registered, Food SGB).

**UNIT STANDARDS ON NQF LEVEL 2**

**Title 1:** Collate and shrink-wrap packaged products using automated wrapping equipment (Registered, Dairy SGB).

**Title 2:** Operate and control the forming and wrapping of a brick or cube shaped food product (Registered, Dairy SGB).

**Title 3:** Operate and control the filling and closing of glass or ridged plastic containers for food or beverage products (Registered, Dairy SGB).

**UNIT STANDARDS ON NQF LEVEL 3**

**Title 1:** Apply first line maintenance on food or beverage processing equipment (Sourced NSB 06)

**Title 2:** Evaluate the acceptability of raw milk in a silo for further processing (Registered, Dairy SGB).

**Title 3:** Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment (Registered, Food SGB).

**UNIT STANDARDS AT NQF LEVEL 4**

**Title 1:** Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products (Registered, Dairy SGB).

**Title 2:** Demonstrate knowledge of the functional components of milk (Registered, Dairy SGB).

**Title 3:** Evaluate the compositional and sensory quality of butter (Registered, Dairy SGB).

**Title 4:** Manufacture butter by means of a batch churn (Registered, Dairy SGB).

**Title 5:** Manufacture butter with a continuous buttermaking machine (Registered, Dairy SGB).

**Title 6:** Prepare and process an aqueous and oil emulsion (To be registered, Food SGB).

**Title 7:** Implement and maintain a food or beverage production quality assurance system (To be registered, Food SGB).

**Title 8:** Demonstrate knowledge of industrial relationship principles and legislation (To be sourced NSB 08).

**Title 9:** Demonstrate knowledge of financial principles (To be sourced NSB 03)

**Title 10:** Engage in sustained oral communication and evaluate spoken texts (Registered NSB 04).

**Title 11:** Read, analyse and respond to a variety of texts (Registered NSB 04).

**Title 12:** Write for a wide range of contexts (Registered NSB 04).

**Title 13:** Use language and communication in occupational learning programmes (Registered NSB 04).

- Title 14:** Apply knowledge of sequences and series to interpret and solve problems in real and simulated situations (Registered NSB 10).
- Title 15:** Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues (Registered NSB 10).
- Title 16:** Work with a wide range of patterns and transformations of functions and solve related problems (Registered NSB 10).
- Title 17:** Construct, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts (Registered NSB 10).
- Title 18:** Apply knowledge of statistics and probability to evaluate and communicate findings on life-related problems (Registered NSB 10).

No. 974

3 October 2001

**National Certificate in Food and Beverage Manufacturing Technology: Processed Cheese  
Technologist NQF 4**

**Field:** Manufacturing, Engineering and Technology - NSB 06

**Sub-field:** Manufacturing and Assembly

**Level:** 4

**Credit:** 120

**Issue date:**

**Review date:**

**Rationale of the qualification**

This qualification reflects the workplace-based needs of the dairy industry that are expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within the dairy industry and provides the flexibility to articulate in the dairy manufacturing environment with a wide variety of specialisation options and articulation within the food manufacturing industry.

The level of flexibility within the range of electives will allow the individual to pursue a career within specialised dairy manufacturing, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

**Purpose of the qualification**

A person acquiring this qualification will be able to manufacture safe, quality assured and packaged processed cheese by operating, controlling and maintaining a processed cheese manufacturing line, from raw materials until the final manufactured product is ready to be sold in the retail market.

**Access to the Qualification**

Open access.

**Learning assumed to be in place**

Knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 3 and a national certificate in food and beverage processing: dairy primary processing NQF level 3.

**Exit level Outcomes**

Qualifying learners can:

Exit level 1: Prepare for processed cheese manufacturing.

**Associated Assessment Criteria**

- The importance of microorganisms in the manufacturing of processed cheese is understood and comprehended.
- The functional components of milk are identified and their application in processed cheese manufacturing is understood and comprehended.
- The ingredients of processed cheese are mixed and blended according to standard operating procedures.
- The processed cheese mixture is prepared according to standard operating procedures.
- The compositional and sensory quality of the cheese used for processed cheese manufacturing is analysed and an evaluation is made in terms of its suitability for use.

Exit level 2: Manufacture processed cheese.

**Associated Assessment Criteria**

- Processed cheese is manufactured from a formulated and prepared processed cheese mixture according to standard operating procedures.
- Processed cheese is sampled and analysed for compositional and sensory quality attributes, and an evaluation is made in terms of its conformance to legal and company standards.

Exit level 3: Pack processed cheese in glass containers.

**Associated Assessment Criteria**

- Processed cheese is packed hermetically into glass containers, making sure to monitor and control the process closely.
- The final packed product is collated and shrink-wrapped according to standard operating procedures and by using automated equipment.

Exit level 4: Pack processed cheese in loaves.

**Associated Assessment Criteria**

- Processed cheese is packed in loaves according to standard operating procedures, making sure to monitor and control the process closely.
- The final packed product is collated and shrink-wrapped according to standard operating procedures and by using automated equipment.

### **International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian, New Zealand and German qualifications. International comparability could be found for a qualification on this level. On the New Zealand Qualifications Authority Framework, two qualifications could be found to support this qualification. These qualifications are the National certificate in Dairy Manufacturing at level 4 and a National certificate in Food and related processing also at level 4.

### **Integrated Assessment**

The applied competence (practical, foundational and reflective competencies) of this qualification will be achieved if a candidate is able to manufacture safe, quality assured and packaged processed cheese by operating, controlling and maintaining a processed cheese manufacturing line, from raw materials until the final manufactured product is ready to be sold in the retail market.

The identification and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflective competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation to processing, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application.

Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment.

A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

### **Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

### **Articulation possibilities**

This qualification will enable the qualifying learner to articulate to other dairy manufacturing specialisation domains at NQF level 4 and will allow progress to the national diploma in food and beverage manufacturing management at NQF level 6, the certificate in food and beverage manufacturing supervision at NQF level 4 and the certificate in food and beverage process artisan at NQF level 4.

### **Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of



the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

#### **Criteria for registration of assessors**

Assessors need experience in the following areas:

Interpersonal skills, subject matter and assessment.

The assessor needs to be competent in the planning and conducting of assessment of learning outcomes and in the design and development of assessments as described in the unit standards **Plan and conduct assessment of learning outcomes NQF level 5**. Subject matter experience must be well developed within the field of processed cheese manufacturing. The assessor must have completed a similar qualification with a minimum of 6-12 months field experience after he/she has completed the qualification or a food science and technology qualification on level 5 or higher. The subject matter experience of the assessor can be established by recognition of prior learning.

Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.

**National Certificate in Food and Beverage Manufacturing Technology: Processed Cheese Technologist NQF 4**

**120 credits**

<b>Fundamental</b>	<b>Level</b>	<b>Credits</b>	<b>Core</b>	<b>Level</b>	<b>Credits</b>
<b>Field of Communication and Language</b>					
Engage in sustained oral communication and evaluate spoken texts.	4	5	Prepare a process cheese mixture.	2	3
Read, analyse and respond to a variety of texts.	4	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.	3	7
Write for a wide range of contexts.	4	5	Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products.	4	8
Use language and communication in occupational learning programmes.	4	5	Demonstrate knowledge of the functional components of milk.	4	7
<b>Field of Physical, Mathematical, Computer and Life Sciences</b>			Manufacture process cheese from a formulated process cheese mixture.	4	20
Apply knowledge of sequences and series to interpret and solve problems in real and simulated situations	4	2	Evaluate the compositional and sensory quality of process cheese.	4	5
Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues	4	2	Evaluate the compositional and sensory quality of cheese.	4	8
Work with a wide range of patterns and transformations of functions and solve related problems	4	3			
Construct, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts	4	4			
Apply knowledge of statistics and probability to evaluate and communicate findings on life-related problems	4	5			
<b>Available credits on level 4</b>		<b>36</b>	<b>Available credits on level 4</b>		<b>48</b>
<b>Total available credits</b>		<b>36</b>	<b>Total available credits</b>		<b>58</b>

<b>Electives</b>	<b>Level</b>	<b>Credits</b>
<b>Choose a minimum of 26 credits</b>		
Bulk fill and close food or beverage products in containers.	1	4
Operate and control the filling and closing of glass or rigid plastic containers for food or beverage products.	2	10
Operate and control the individual wrapping of process cheese portions.	2	12
Mix or blend food raw materials for processing using automated equipment.	2	4
Operate and control the forming and wrapping of a brick or cube shaped food product.	2	10
Collate and shrink-wrap packaged products using automated wrapping equipment.	2	4
Apply first line maintenance on food or beverage processing equipment.	3	10
Demonstrate knowledge of financial principles.	4	7
Demonstrate knowledge of industrial relationship principles and legislation.	4	4
Implement and maintain a food or beverage production quality assurance system.	4	8

## **UNIT STANDARDS IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGE MANUFACTURING TECHNOLOGY: RIPENED CHEESE TECHNOLOGIST NQF 4**

### **UNIT STANDARDS ON NQF LEVEL 1**

**Title 1:** Bulk fill and close food or beverage products in containers (To be registered, Food SGB).

### **UNIT STANDARDS ON NQF LEVEL 2**

**Title 1:** Prepare a processed cheese mixture (Registered, Dairy SGB).

**Title 2:** Operate and control the filling and closing of glass or rigid plastic containers for food or beverage products (Registered, Dairy SGB).

**Title 3:** Operate and control the individual wrapping of process cheese portions (Registered, Dairy SGB).

**Title 4:** Mix or blend food raw materials for processing using automated equipment (Registered, Food SGB).

**Title 5:** Operate and control the forming and wrapping of a brick or cube shaped food product (Registered, Dairy SGB).

**Title 6:** Collate and shrink-wrap packaged products using automated wrapping equipment (Registered, Dairy SGB).

### **UNIT STANDARDS ON NQF LEVEL 3**

**Title 1:** Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment (Registered, Food SGB).

**Title 2:** Apply first line maintenance on food or beverage processing equipment (To be sourced from NSB 06).

### **UNIT STANDARDS AT NQF LEVEL 4**

**Title 1:** Implement and maintain a food or beverage production quality assurance system (To be registered, Food SGB).

**Title 2:** Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products (Registered, Dairy SGB).

**Title 3:** Demonstrate knowledge of the functional components of milk (Registered, Dairy SGB).

**Title 4:** Manufacture processed cheese from a formulated processed cheese mixture (Registered, Dairy SGB).

**Title 5:** Evaluate the compositional and sensory quality of processed cheese (Registered, Dairy SGB).

**Title 6:** Evaluate the compositional and sensory quality of cheese (Registered, Dairy SGB).

**Title 7:** Demonstrate knowledge of financial principles (To be sourced from NSB 03).

- Title 8:** Demonstrate knowledge of industrial relationship principles and legislation (To be sourced from NSB 08).
- Title 9:** Engage in sustained oral communication and evaluate spoken texts (Registered, NSB 04).
- Title 10:** Read, analyse and respond to a variety of texts (Registered, NSB 04).
- Title 11:** Write for a wide range of contexts (Registered, NSB 04).
- Title 12:** Use language and communication in occupational learning programmes (Registered, NSB 04).
- Title 13:** Apply knowledge of sequences and series to interpret and solve problems in real and simulated situations (Registered, NSB 10).
- Title 14:** Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues (Registered, NSB 10).
- Title 15:** Work with a wide range of patterns and transformations of functions and solve related problems (Registered, NSB 10).
- Title 16:** Construct, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts (Registered, NSB 10).
- Title 17:** Apply knowledge of statistics and probability to evaluate and communicate findings on life-related problems (Registered, NSB 10).

No. 975

3 October 2001

**National Certificate in Food and Beverage Manufacturing Technology: Liquid Long Life Dairy Products Technologist NQF 4**

**Field:** Manufacturing, Engineering and Technology - NSB 06  
**Sub-field:** Manufacturing and Assembly  
**Level:** 4  
**Credit:** 130  
**Issue date:**  
**Review date:**

**Rationale of the qualification**

This qualification reflects the workplace-based needs of the dairy industry that are expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within the dairy industry and provides the flexibility to articulate in the dairy manufacturing environment with a wide variety of specialisation options and articulation within the food manufacturing industry.

The level of flexibility within the range of electives will allow the individual to pursue a career within specialised dairy manufacturing, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

**Purpose of the qualification**

A person acquiring this qualification will be able to manufacture safe, quality assured and packaged liquid long life dairy products by operating, controlling and maintaining a liquid long life product manufacturing line, from raw materials until the final manufactured product is ready to be sold in the retail market.

**Access to the Qualification**

Open access.

**Learning assumed to be in place**

Knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 3 and a national certificate in food and beverage processing: dairy primary processing NQF level 3.



**Exit level Outcomes**

Qualifying learners can:

Exit level 1: Manufacture liquid UHT dairy products.

**Associated Assessment Criteria**

- Raw milk in a silo is sampled, analysed and evaluated in terms of its acceptability for manufacturing of liquid UHT dairy products.
- The importance of microorganisms in the manufacturing of liquid UHT dairy products is understood and comprehended.
- The functional components of milk are identified and their application in the manufacturing of liquid UHT dairy products is understood and comprehended.
- Liquid UHT dairy products are manufactured according to standard operating procedures.
- Liquid UHT dairy products are packed aseptically into cartons, making sure to monitor and control the process closely.
- The packaged product is collated and shrink-wrapped according to standard operating procedures and by using automated equipment.
- The manufactured products are sampled and analysed for compositional and sensory quality attributes, and an evaluation is made in terms of its conformance to legal and company standards.

Exit level 2: Manufacture liquid sterilised dairy products using a steri-tower.

**Associated Assessment Criteria**

- Raw milk in a silo is sampled, analysed and evaluated in terms of its acceptability for manufacturing of liquid sterilised dairy products.
- The importance of microorganisms in the manufacturing of liquid sterilised dairy products is understood and comprehended.
- The functional components of milk are identified and their application in the manufacturing of liquid sterilised dairy products is understood and comprehended.
- Liquid dairy products intended for sterilisation are packed hermetically into glass or rigid plastic containers, making sure to monitor and control the process closely.
- The packed liquid dairy products are sterilised in a steri-tower according to standard operating procedures.
- The final packed and sterilised products are collated and shrink-wrapped according to standard operating procedures and by using automated equipment.
- The manufactured products are sampled and analysed for compositional and sensory quality attributes, and an evaluation is made in terms of its conformance to legal and company standards.

Exit level 3: Manufacture liquid sterilised dairy products using a sterilising retort.

#### **Associated Assessment Criteria**

- Raw milk in a silo is sampled, analysed and evaluated in terms of its acceptability for manufacturing of liquid sterilised dairy products.
- The importance of microorganisms in the manufacturing of liquid sterilised dairy products is understood and comprehended.
- The functional components of milk are identified and their application in the manufacturing of liquid sterilised dairy products is understood and comprehended.
- Liquid dairy products intended for sterilisation are packed hermetically into cans, making sure to monitor and control the process closely.
- The canned liquid dairy products are sterilised in a sterilising retort according to standard operating procedures.
- The final packed and sterilised products are collated and shrink-wrapped according to standard operating procedures and by using automated equipment.
- The manufactured products are sampled and analysed for compositional and sensory quality attributes, and an evaluation is made in terms of its conformance to legal and company standards.

#### **International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian, New Zealand and German qualifications. International comparability could be found for a qualification on this level. On the New Zealand Qualifications Authority Framework, two qualifications could be found to support this qualification. These qualifications are the National certificate in Dairy Manufacturing at level 4 and a National certificate in Food and related processing also at level 4.

#### **Integrated Assessment**

The applied competence (practical, foundational and reflective competencies) of this qualification will be achieved if a candidate is able to manufacture safe, quality assured and packaged liquid long life dairy products by operating, controlling and maintaining a liquid long life product manufacturing line, from raw materials until the final manufactured product is ready to be sold in the retail market.

The identification and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflective competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation to processing, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application.

Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment. A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

### Recognition of prior learning

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

### Articulation possibilities

This qualification will enable the qualifying learner to articulate to other dairy manufacturing specialisation domains at NQF level 4 and will allow progress to the national diploma in food and beverage manufacturing management at NQF level 6, the certificate in food and beverage manufacturing supervision at NQF level 4 and the certificate in food and beverage process artisan at NQF level 4.

### Moderation Options

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

### Criteria for registration of assessors

Assessors need experience in the following areas:

Interpersonal skills, subject matter and assessment.

The assessor needs to be competent in the planning and conducting of assessment of learning outcomes and in the design and development of assessments as described in the unit standards **Plan and conduct assessment of learning outcomes NQF level 5**. Subject matter experience must be well developed within the field of liquid long life dairy products manufacturing. The assessor must have completed a similar qualification with a minimum of 6-12 months field experience after he/she has completed the qualification or a food science and technology qualification on level 5 or higher. The subject matter experience of the assessor can be established by recognition of prior learning.

Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.

<b>National Certificate in Food and Beverage Manufacturing Technology: Liquid Long Life Dairy Products Technologist NQF 4</b>	<b>130 credits</b>
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Fundamental	Level	Credits	Core	Level	Credits
<b>Field of Communication and Language</b>			Evaluate the acceptability of raw milk in a silo for further processing.	3	5
Engage in sustained oral communication and evaluate spoken texts.	4	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.	3	7
Read, analyse and respond to a variety of texts.	4	5	Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products	4	8
Write for a wide range of contexts.	4	5	Demonstrate knowledge of the functional components of milk.	4	7
Use language and communication in occupational learning programmes.	4	5	Evaluate the compositional and sensory quality of liquid long life dairy products.	4	5
<b>Field of Physical, Mathematical, Computer and Life Sciences</b>					
Apply knowledge of sequences and series to interpret and solve problems in real and simulated situations	4	2			
Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues	4	2			
Work with a wide range of patterns and transformations of functions and solve related problems	4	3			
Construct, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts	4	4			
Apply knowledge of statistics and probability to evaluate and communicate findings on life-related problems	4	5			
<b>Available credits on level 4</b>		<b>36</b>	<b>Available credits on level 4</b>		<b>20</b>
<b>Total available credits</b>		<b>36</b>	<b>Total available credits</b>		<b>32</b>

Electives	Level	Credits
<b>Choose a minimum of 62 credits (16 credits of the 62 must be on level 4)</b>		
Mix or blend food raw materials for processing using automated equipment.	2	4
Operate and control the filling and closing of glass or rigid plastic containers for food or beverage products.	2	10
Collate and shrink-wrap packaged products using automated wrapping equipments	2	4
Operate and control the filling and seaming of cans for food or beverage products	2	12
Evaluate the efficiency of homogenisation of a liquid dairy product as indicated by the homogenisation index.	3	2
Apply first line maintenance on food or beverage processing equipment.	3	10
Sterilise a food or beverage product using retorting equipment.	3	12
Operate and control the aseptic forming, filling, and sealing of containers for food or beverage products.	3	18
Evaporate a liquid food product using a falling or rising film evaporator.	4	20
Manufacture a UHT product.	4	12
Sterilise a liquid dairy product in a steri-tower.	4	12
Implement and maintain a food or beverage production quality assurance system.	4	8
Demonstrate knowledge of financial principles.	4	7
Demonstrate knowledge of industrial relationship principles and legislation.	4	4



**UNIT STANDARDS IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGE  
MANUFACTURING TECHNOLOGY: RIPENED CHEESE TECHNOLOGIST NQF 4****UNIT STANDARDS ON NQF LEVEL 2**

- Title 1:** Mix or blend food raw materials for processing using automated equipment (Registered, Food SGB).
- Title 2:** Operate and control the filling and closing of glass or rigid plastic containers for food or beverage products (Registered, Dairy SGB).
- Title 3:** Collate and shrink-wrap packaged products using automated wrapping equipment (Registered, Dairy SGB).
- Title 4:** Operate and control the filling and seaming of cans for food or beverage products (Registered, Dairy SGB).

**UNIT STANDARDS ON NQF LEVEL 3**

- Title 1:** Evaluate the acceptability of raw milk in a silo for further processing (Registered, Dairy SGB).
- Title 2:** Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment (Registered, Food SGB).
- Title 3:** Evaluate the efficiency of homogenisation of a liquid dairy product as indicated by the homogenisation index (Registered, Dairy SGB).
- Title 4:** Apply first line maintenance on food or beverage processing equipment (To be sourced from NSB 06).
- Title 5:** Sterilise a food or beverage product using retorting equipment (Registered, Food SGB).
- Title 6:** Operate and control the aseptic forming, filling, and sealing of containers for food or beverage products (Registered, Dairy SGB).

**UNIT STANDARDS AT NQF LEVEL 4**

- Title 1:** Implement and maintain a food production quality assurance system (To be registered, Food SGB).
- Title 2:** Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products (Registered, Dairy SGB).
- Title 3:** Demonstrate knowledge of the functional components of milk (Registered, Dairy SGB).
- Title 4:** Evaluate the compositional and sensory quality of liquid long life dairy products (Registered, Dairy SGB).
- Title 5:** Evaporate a liquid food product using a falling or rising film evaporator (Registered, Dairy SGB).
- Title 6:** Manufacture a UHT product (Registered, Dairy SGB).
- Title 7:** Sterilise a liquid dairy product in a steri-tower (Registered, Dairy SGB).
- Title 8:** Demonstrate knowledge of financial principles (To be sourced from NSB 03).



- Title 9:** Demonstrate knowledge of industrial relationship principles and legislation (To be sourced from NSB 08).
- Title 10:** Engage in sustained oral communication and evaluate spoken texts (Registered, NSB 04).
- Title 11:** Read, analyse and respond to a variety of texts (Registered, NSB 04).
- Title 12:** Write for a wide range of contexts (Registered, NSB 04).
- Title 13:** Use language and communication in occupational learning programmes (Registered, NSB 04).
- Title 14:** Apply knowledge of sequences and series to interpret and solve problems in real and simulated situations (Registered, NSB 10).
- Title 15:** Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues (Registered, NSB 10).
- Title 16:** Work with a wide range of patterns and transformations of functions and solve related problems (Registered, NSB 10).
- Title 17:** Construct, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts (Registered, NSB 10).
- Title 18:** Apply knowledge of statistics and probability to evaluate and communicate findings on life-related problems (Registered, NSB 10).

No. 976

3 October 2001

**National Certificate in Food and Beverage Manufacturing Technology: Frozen Ice Cream and Frozen Ice Cream related Products Technologist NQF 4**

**Field:** Manufacturing, Engineering and Technology - NSB 06  
**Sub-field:** Manufacturing and Assembly  
**Level:** 4  
**Credit:** 130  
**Issue date:**  
**Review date:**

**Rationale of the qualification**

This qualification reflects the workplace-based needs of the dairy industry that are expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within the dairy industry and provides the flexibility to articulate in the dairy manufacturing environment with a wide variety of specialisation options and articulation within the food manufacturing industry.

The level of flexibility within the range of electives will allow the individual to pursue a career within specialised dairy manufacturing, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

**Purpose of the qualification**

A person acquiring this qualification will be able to manufacture safe, quality assured and packaged frozen ice cream and frozen ice cream related products. This will be managed by operating, controlling and maintaining a frozen ice cream and frozen ice cream related product manufacturing line, from raw materials until the final manufactured product is ready to be sold in the retail market.

**Access to the Qualification**

Open access.

**Learning assumed to be in place**

Knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 3 and a national certificate in food and beverage processing: dairy primary processing NQF level 3.

**Exit level Outcomes**

Qualifying learners can:

Exit level 1: Prepare a frozen ice cream and frozen ice cream related product mixture for processing.

**Associated Assessment Criteria**

- The importance of micro-organisms in the manufacturing of frozen ice cream and frozen ice cream related products is understood and comprehended.
- The functional components of milk are identified and their application in the manufacturing of frozen ice cream and frozen ice cream related product is understood and comprehended.
- Knowledge and comprehension of the purpose and contribution of non dairy related raw materials to the physical and sensory composition of frozen ice cream and frozen ice cream related product mixtures is applied.
- Prepare a mixture for frozen ice cream and frozen ice cream related products according to standard operating procedures.

Exit level 2: Process a range of frozen ice cream and frozen ice cream related mixture using frozen ice cream technologies.

**Associated Assessment Criteria**

- Dairy ice cream or ice cream related mixture is aged and freezed using a continuous freezer.
- Frozen dairy ice cream or ice cream related mixture is aerated according to standard operating procedures.
- Frozen dairy ice cream or ice cream related product is moulded according to standard operating procedures.
- A range of frozen dairy ice cream or ice cream related products are manufactured according standard operating procedures.
- Frozen dairy ice cream or ice cream related product are sampled and analysed for compositional and sensory quality attributes, and an evaluation is made in terms of its conformance to legal and company standards.

Exit level 3: Pack in frozen dairy ice cream or ice cream related products.

**Associated Assessment Criteria**

- Frozen dairy ice cream or ice cream related product are packed or wrapped in suitable containers or packaging materials making sure to monitor and control the process closely,
- The packaged product is collated and shrink-wrapped according to standard operating procedures and by using automated equipment.

**International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian, New Zealand and German qualifications. International comparability could be found for a qualification on this level. On the New Zealand Qualifications Authority Framework, two qualifications could be found to support this qualification. These qualifications are the National certificate in Dairy Manufacturing at level 4 and a National certificate in Food and related processing also at level 4.

**Integrated Assessment**

The applied competence (practical, foundational and reflective competencies) this qualification will be able to manufacture safe, quality assured and packaged frozen ice cream and frozen ice cream related products. This will be managed by operating, controlling and maintaining a frozen ice cream and frozen ice cream

related product manufacturing line, from raw materials until the final manufactured product is ready to be sold in the retail market.

The identification and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflective competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation to processing, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application.

Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment.

A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

### **Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

### **Articulation possibilities**

This qualification will enable the qualifying learner to articulate to other dairy manufacturing specialisation domains at NQF level 4 and will allow progress to the national diploma in food and beverage manufacturing management at NQF level 6, the certificate in food and beverage manufacturing supervision at NQF level 4 and the certificate in food and beverage process artisan at NQF level 4.

### **Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

**Criteria for registration of assessors**

Assessors need experience in the following areas:

Interpersonal skills, subject matter and assessment.

The assessor needs to be competent in the planning and conducting of assessment of learning outcomes and in the design and development of assessments as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5. The assessor must have completed a similar qualification with a minimum of 6-12 months field experience after he/she has completed the qualification or a food science and technology qualification on level 5 or higher. The subject matter experience of the assessor can be established by recognition of prior learning.

Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.



**National Certificate in Food and Beverage Manufacturing Technology: Frozen Ice Cream and Frozen Ice Cream related Products Technologist NQF 4 120 credits**

<b>Fundamental</b>	<b>L</b>	<b>Cr</b>	<b>Core</b>	<b>L</b>	<b>Cr</b>
<b>Field of Communication and Language</b>			Freeze or chill a food product.	3	8
Engage in sustained oral communication and evaluate spoken texts.	4	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.	3	7
Read, analyse and respond to a variety of texts.	4	5	Age and freeze a dairy ice cream or ice cream related mixture using a continuous freezer.	3	8
Write for a wide range of contexts.	4	5	Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products.	4	8
Use language and communication in occupational learning programmes.	4	5	Manufacture a frozen dairy ice cream or ice cream related product.	4	15
<b>Field of Physical, Mathematical, Computer and Life Sciences</b>			Evaluate the compositional and sensory quality of frozen dairy ice cream or ice cream related products.	4	5
Apply knowledge of sequences and series to interpret and solve problems in real and simulated situations	4	2	Aerate a frozen dairy ice cream or ice cream related product.	4	6
Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues	4	2	Demonstrate knowledge of the functional components of milk.	4	7
Work with a wide range of patterns and transformations of functions and solve related problems	4	3			
Construct, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts	4	4			
Apply knowledge of statistics and probability to evaluate and communicate findings on life-related problems	4	5			
<b>Total available credits</b>		<b>36</b>	<b>Total available credits</b>		<b>64</b>

<b>Electives Choose a minimum of 30 credits</b>	<b>L</b>	<b>Cr</b>
Operate and control the wrapping and sealing of individual food product units.	2	3
Operate and control the filling and closing of glass or rigid plastic containers for food or beverage products.	2	10
Collate and shrink-wrap packaged products using automated wrapping equipment.	2	4
Mix or blend food raw materials for processing using automated equipment.	2	4
Enrobe confectionery products.	3	8
Mould a frozen dairy ice cream or ice cream related product.	3	7
Apply first line maintenance on food or beverage processing equipment.	3	10
Manufacture wafer products.	4	12
Prepare a bulk starter culture for the manufacturing of fermented dairy products or cheese.	4	8
Coagulate a dairy mixture for the manufacturing of a fermented dairy product.	4	5
Manufacture yoghurt and another fermented dairy product.	4	15
Implement and maintain a food or beverage production quality assurance system.	4	8
Demonstrate knowledge of financial principles.	4	7
Demonstrate knowledge of industrial relationship principles and legislation.	4	4

**UNIT STANDARDS IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGE MANUFACTURING TECHNOLOGY: FROZEN ICE CREAM AND FROZEN ICE CREAM RELATED PRODUCTS TECHNOLOGIST NQF 4****UNIT STANDARDS ON NQF LEVEL 2**

- Title 1:** Collate and shrink-wrap packaged products using automated wrapping equipment (Registered, Dairy SGB).
- Title 2:** Operate and control the filling and closing of glass or rigid plastic containers for food or beverage products (Registered, Dairy SGB).
- Title 3:** Operate and control the wrapping and sealing of individual food product units (Registered, Dairy SGB).
- Title 4:** Mix or blend food raw materials for processing using automated equipment (Registered, Food SGB).

**UNIT STANDARDS ON NQF LEVEL 3**

- Title 1:** Enrobe confectionery products (Registered, Food SGB).
- Title 2:** Mould a frozen dairy ice cream or ice cream related product (Registered, Dairy SGB).
- Title 3:** Freeze or chill a food product (Registered, Food SGB).
- Title 4:** Age and freeze a dairy ice cream or ice cream related mixture using a continuous freezer (Registered, Dairy SGB).
- Title 5:** Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment (Registered, Food SGB).
- Title 6:** Apply first line maintenance on food or beverage processing equipment (To be sourced from NSB 06).

**UNIT STANDARDS AT NQF LEVEL 4**

- Title 1:** Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products (Registered, Dairy SGB).
- Title 2:** Demonstrate knowledge of the functional components of milk (Registered, Dairy SGB).
- Title 3:** Coagulate a dairy mixture for the manufacturing of a fermented dairy product (Registered, Dairy SGB).
- Title 4:** Manufacture yoghurt and another fermented dairy product (Registered, Dairy SGB).
- Title 5:** Manufacture a frozen dairy ice cream or ice cream related product (Registered, Dairy SGB).
- Title 6:** Evaluate the compositional and sensory quality of frozen dairy ice cream or ice cream related products (Registered, Dairy SGB).
- Title 7:** Aerate a frozen dairy ice cream or ice cream related product (Registered, Dairy SGB).
- Title 8:** Manufacture wafer products (Registered, Dairy SGB).
- Title 9:** Prepare a bulk starter culture for the production of fermented dairy products (Registered,

Dairy SGB).

- Title 10:** Implement and maintain a food or beverage production quality assurance system (To be registered, Food SGB).
- Title 11:** Demonstrate knowledge of financial principles (To be sourced from NSB 03).
- Title 12:** Demonstrate knowledge of industrial relationship principles and legislation (To be sourced from NSB 08).
- Title 13:** Engage in sustained oral communication and evaluate spoken texts (Registered, NSB 04).
- Title 14:** Read, analyse and respond to a variety of texts (Registered, NSB 04).
- Title 15:** Write for a wide range of contexts (Registered, NSB 04).
- Title 16:** Use language and communication in occupational learning programmes (Registered, NSB 04).
- Title 17:** Apply knowledge of sequences and series to interpret and solve problems in real and simulated situations (Registered, NSB 10).
- Title 18:** Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues (Registered, NSB 10).
- Title 19:** Work with a wide range of patterns and transformations of functions and solve related problems (Registered, NSB 10).
- Title 20:** Construct, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts (Registered, NSB 10).
- Title 21:** Apply knowledge of statistics and probability to evaluate and communicate findings on life-related problems (Registered, NSB 10).

No. 977

3 October 2001

**National Certificate in Food and Beverage Manufacturing Technology: Fermented Dairy Products Technologist NQF 4****Field:** Manufacturing, Engineering and Technology - NSB 06**Sub-field:** Manufacturing and Assembly**Level:** 4**Credit:** 120**Issue date:****Review date:****Rationale of the qualification**

This qualification reflects the workplace-based needs of the dairy industry that are expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within the dairy industry and provides the flexibility to articulate in the dairy manufacturing environment with a wide variety of specialisation options and articulation within the food manufacturing industry.

The level of flexibility within the range of electives will allow the individual to pursue a career within specialised dairy manufacturing, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

**Purpose of the qualification**

A person acquiring this qualification will be able to manufacture safe, quality assured and packaged fermented dairy products by operating, controlling and maintaining a fermented dairy manufacturing line, from raw materials until the final manufactured product is ready to be sold in the retail market.

**Access to the Qualification**

Open access.

**Learning assumed to be in place**

Knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 3 and a national certificate in food and beverage processing: dairy primary processing NQF level 3.

**Exit level Outcomes**

Qualifying learners can:

Exit level 1: Manufacture fermented dairy products.

**Associated Assessment Criteria**

- Yoghurt and another fermented dairy product are manufactured from coagulated milk according to standard operating procedures.
- The manufactured fermented dairy products are sampled and analysed for compositional and sensory quality attributes, and an evaluation is made in terms of its conformance to legal and company standards.

Exit level 2: Pack fermented dairy products in rigid plastic containers.

**Associated Assessment Criteria**

- Fermented dairy products are packed into rigid plastic containers, making sure to monitor and control the process closely.
- The packaged product is collated and shrink-wrapped according to standard operating procedures and by using automated equipment.

Exit level 3: Pack fermented dairy products in cartons.

**Associated Assessment Criteria**

- Fermented dairy products are packed hermetically into cartons, making sure to monitor and control the process closely.
- The packaged product is collated and shrink-wrapped according to standard operating procedures and by using automated equipment.

Exit level 4: Coagulate milk or a dairy mixture for the manufacturing of fermented dairy products.

**Associated Assessment Criteria**

- Raw milk in a silo is sampled, analysed and evaluated in terms of its acceptability for the manufacturing of fermented dairy products.
- The importance of microorganisms in the manufacturing of fermented dairy products is understood and comprehended.
- The functional components of milk are identified and their application in the manufacturing of fermented dairy product is understood and comprehended.
- Milk or a dairy mixture is coagulated for the manufacturing of fermented dairy products according to standard operating procedures.

Exit level 5: Manufacture a starter culture for the manufacturing of fermented dairy products.

**Associated Assessment Criteria**

- A bulk starter culture is prepared for the manufacturing of fermented dairy products according to standard operating procedures.
- The activity of the prepared bulk starter culture is determined according to standard operating procedures and an evaluation is made in terms of its suitability for use.
- The importance of microorganisms in the manufacturing of bulk starter cultures is understood and comprehended.



**International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian, New Zealand and German qualifications. International comparability could be found for a qualification on this level. On the New Zealand Qualifications Authority Framework, two qualifications could be found to support this qualification. These qualifications are the National certificate in Dairy Manufacturing at level 4 and a National certificate in Food and related processing also at level 4.

**Integrated Assessment**

The applied competence (practical, foundational and reflective competencies) of this qualification will be achieved if a candidate is able to manufacture safe, quality assured and packaged fermented dairy products by operating, controlling and maintaining a fermented dairy manufacturing line, from raw materials until the final manufactured product is ready to be sold in the retail market.

The identification and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflective competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation to processing, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application.

Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment. A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

**Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

**Articulation possibilities**

This qualification will enable the qualifying learner to articulate to other dairy manufacturing specialisation domains at NQF level 4 and will allow progress to the national diploma in food and beverage manufacturing management at NQF level 6, the certificate in food and beverage manufacturing supervision at NQF level 4 and the certificate in food and beverage process artisan at NQF level 4.

**Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around

assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.

- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

#### **Criteria for registration of assessors**

Assessors need experience in the following areas:

Interpersonal skills, subject matter and assessment.

The assessor needs to be competent in the planning and conducting of assessment of learning outcomes and in the design and development of assessments as described in the unit **standards Plan and conduct assessment of learning outcomes NQF level 5**. Subject matter experience must be well developed within the field of fermented dairy products manufacturing. The assessor must have completed a similar qualification with a minimum of 6-12 months field experience after he/she has completed the qualification or a food science and technology qualification on level 5 or higher. The subject matter experience of the assessor can be established by recognition of prior learning.

Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.

National Certificate in Food and Beverage Manufacturing Technology: Fermented Dairy Products Technologist NQF 4	120 credits
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Fundamental	Level	Credits	Core	Level	Credits
			Collate and shrink-wrap packaged products using automated wrapping equipment.	2	4
<b>Field of Communication and Language</b>			Evaluate the acceptability of raw milk in a silo for further processing.	3	5
Engage in sustained oral communication and evaluate spoken texts.	4	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.	3	7
Read, analyse and respond to a variety of texts.	4	5	Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products.	4	8
Write for a wide range of contexts.	4	5	Demonstrate knowledge of the functional components of milk.	4	7
Use language and communication in occupational learning programmes.	4	5	Coagulate a dairy mixture for the manufacturing of a fermented dairy product.	4	5
<b>Field of Physical, Mathematical, Computer and Life Sciences</b>			Manufacture yoghurt and another fermented dairy product.	4	15
Apply knowledge of sequences and series to interpret and solve problems in real and simulated situations	4	2	Evaluate the compositional and sensory quality of fermented dairy products.	4	6
Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues	4	2			
Work with a wide range of patterns and transformations of functions and solve related problems	4	3			
Construct, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts	4	4			
Apply knowledge of statistics and probability to evaluate and communicate findings on life-related problems	4	5			
<b>Total available credits</b>		<b>36</b>	<b>Total available credits</b>		<b>67</b>

Electives Choose a minimum of 27 credits	Level	Credits
Operate and control the filling and closing of glass or rigid plastic containers for food or beverage products.	2	10
Operate and control the forming, filling and hermetic sealing of gable top or brick type cartons for food or beverage products.	2	12
Mix or blend food raw materials for processing using automated equipment.	2	4
Operate and control the aseptic forming, filling and sealing of containers for food or beverage products.	3	18
Apply first line maintenance on food or beverage processing equipment.	3	10
Prepare a bulk starter culture for the production of fermented dairy products.	4	8
Implement and maintain a food or beverage production quality assurance system.	4	8
Demonstrate knowledge of financial principles.	4	7
Demonstrate knowledge of industrial relationship principles and legislation.	4	4

**UNIT STANDARDS IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGE MANUFACTURING TECHNOLOGY: FERMENTED DAIRY PRODUCTS TECHNOLOGIST NQF 4****UNIT STANDARDS ON NQF LEVEL 2**

- Title 1:** Collate and shrink-wrap packaged products using automated wrapping equipment (Registered, Dairy SGB).
- Title 2:** Operate and control the filling and closing of glass or rigid plastic containers for food or beverage products (Registered, Dairy SGB).
- Title 3:** Operate and control the forming, filling and hermetic sealing of gable top or brick type cartons for food or beverage products (Registered, Dairy SGB).
- Title 4:** Mix or blend food raw materials for processing using automated equipment (Registered, Food SGB).

**UNIT STANDARDS ON NQF LEVEL 3**

- Title 1:** Evaluate the acceptability of raw milk in a silo for further processing (Registered, Dairy SGB).
- Title 2:** Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment (Registered, Food SGB).
- Title 3:** Operate and control the aseptic forming, filling and sealing of containers for food or beverage products (Registered, Dairy SGB).
- Title 4:** Apply first line maintenance on food or beverage processing equipment (To be sourced from NSB 06).

**UNIT STANDARDS AT NQF LEVEL 4**

- Title 1:** Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products (Registered, Dairy SGB).
- Title 2:** Demonstrate knowledge of the functional components of milk (Registered, Dairy SGB).
- Title 3:** Coagulate a dairy mixture for the manufacturing of a fermented dairy product (Registered, Dairy SGB).
- Title 4:** Manufacture yoghurt and another fermented dairy product (Registered, Dairy SGB).
- Title 5:** Evaluate the compositional and sensory quality of fermented dairy products (Registered, Dairy SGB).
- Title 6:** Prepare a bulk starter culture for the production of fermented dairy products (Registered, Dairy SGB).
- Title 7:** Implement and maintain a food or beverage production quality assurance system (To be registered, Food SGB).
- Title 8:** Demonstrate knowledge of financial principles (To be sourced from NSB 03).
- Title 9:** Demonstrate knowledge of industrial relationship principles and legislation (To be sourced from NSB 08).

- Title 10:** Engage in sustained oral communication and evaluate spoken texts (Registered, NSB 04).
- Title 11:** Read, analyse and respond to a variety of texts (Registered, NSB 04).
- Title 12:** Write for a wide range of contexts (Registered, NSB 04).
- Title 13:** Use language and communication in occupational learning programmes (Registered, NSB 04).
- Title 14:** Apply knowledge of sequences and series to interpret and solve problems in real and simulated situations (Registered, NSB 10).
- Title 15:** Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues (Registered, NSB 10).
- Title 16:** Work with a wide range of patterns and transformations of functions and solve related problems (Registered, NSB 10).
- Title 17:** Construct, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts (Registered, NSB 10).
- Title 18:** Apply knowledge of statistics and probability to evaluate and communicate findings on life-related problems (Registered, NSB 10).



No. 978

3 October 2001

**National Certificate in Food and Beverage Manufacturing Technology: Dried Dairy Products Technologist NQF 4**

**Field:** Manufacturing, Engineering and Technology - NSB 06  
**Sub-field:** Manufacturing and Assembly  
**Level:** 4  
**Credit:** 150  
**Issue date:**  
**Review date:**

**Rationale of the qualification**

This qualification reflects the workplace-based needs of the dairy industry that are expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within the dairy industry and provides the flexibility to articulate in the dairy manufacturing environment with a wide variety of specialisation options and articulation within the food manufacturing industry.

The level of flexibility within the range of electives will allow the individual to pursue a career within specialised dairy manufacturing, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

**Purpose of the qualification**

A person acquiring this qualification will be able to manufacture safe, quality assured and packaged dried dairy products by operating, controlling and maintaining a dried dairy product manufacturing line, from raw materials until the final manufactured product is ready to be sold in the retail market.

**Access to the Qualification**

Open access.

**Learning assumed to be in place**

Knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 3 and a national certificate in food and beverage processing: dairy primary processing NQF level 3.

**Exit level Outcomes**

Qualifying learners can:

Exit level 1: Evaporate of liquid dairy based mixture.

**Associated Assessment Criteria**

- Raw milk in a silo is sampled, analysed and evaluated in terms of its acceptability for dried dairy based products manufacturing.
- The importance of micro-organisms in the manufacturing of dried dairy based products is understood and comprehended.
- The functional components of milk are identified and their application in dried dairy based products manufacturing is understood and comprehended.
- Food raw materials used for dairy based mixtures are mixed and blended for processing according to standard operating procedures.
- Evaporate a liquid dairy based mixture using a falling or rising film evaporator according to standard operating procedures.

Exit level 2: Manufacture dried dairy based products using roller drying technology.

**Associated Assessment Criteria**

- Evaporated or concentrated dairy based mixture is dried using roller drying technology according to standard operating procedures.
- Roller dried dairy based products are sampled and analysed for compositional and sensory quality attributes, and an evaluation is made in terms of its conformance to legal and company standards.

Exit level 3: Manufacture spray dried dairy products using spray drying technology.

**Associated Assessment Criteria**

- Evaporated or concentrated dairy based mixture is dried using spray drying technology according to standard operating procedures.
- Spray dried dairy products are sampled and analysed for compositional and sensory quality attributes, and an evaluation is made in terms of its conformance to legal and company standards.

Exit level 4: Manufacture instant milk powder products.

**Associated Assessment Criteria**

- Evaporated or concentrated milk is spray dried and instantised using spray drying and instantising technology according to standard operating procedures.
- Instant milk powder products are sampled and analysed for compositional and sensory quality attributes, and an evaluation is made in terms of its conformance to legal and company standards.

Exit level 5: Pack dried dairy products

**Associated Assessment Criteria**

- Dry dairy products are packed and the packaging process line is operated and controlled according to standard operating procedures.

- The packaged products is collated and shrink-wrapped according to standard operating procedures and by using automated equipment.

### **International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian, New Zealand and German qualifications. International comparability could be found for a qualification on this level. On the New Zealand Qualifications Authority Framework, two qualifications could be found to support this qualification. These qualifications are the National certificate in Dairy Manufacturing at level 4 and a National certificate in Food and related processing also at level 4.

### **Integrated Assessment**

The applied competence (practical, foundational and reflective competencies) of this qualification will be able to manufacture safe, quality assured and packaged dried dairy products by operating, controlling and maintaining a dried dairy product manufacturing line, from raw materials until the final manufactured product is ready to be sold in the retail market.

The identification and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflective competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation to processing, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application.

Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment. A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

### **Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

### **Articulation possibilities**

This qualification will enable the qualifying learner to articulate to other dairy manufacturing specialisation domains at NQF level 4 and will allow progress to the national diploma in food and beverage manufacturing management at NQF level 6, the certificate in food and beverage manufacturing supervision at NQF level 4 and the certificate in food and beverage process artisan at NQF level 4.

### **Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around

assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.

- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

#### **Criteria for registration of assessors**

Assessors need experience in the following areas:

Interpersonal skills, subject matter and assessment.

The assessor needs to be competent in the planning and conducting of assessment of learning outcomes and in the design and development of assessments as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5. Subject matter experience must be well developed within the field of dried dairy products manufacturing. The assessor must have completed a similar qualification with a minimum of 6-12 months field experience after he/she has completed the qualification or a food science and technology qualification on level 5 or higher. The subject matter experience of the assessor can be established by recognition of prior learning.

Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.

**National Certificate in Food and Beverage Manufacturing Technology: Dried Dairy Products Technologist NQF 4 150 credits**

<b>Fundamental</b>	<b>L</b>	<b>Cr</b>	<b>Core</b>	<b>L</b>	<b>Cr</b>
<b>Field of Communication and Language</b>					
Engage in sustained oral communication and evaluate spoken texts.	4	5	Evaluate the acceptability of raw milk in a silo for further processing.	3	5
Read, analyse and respond to a variety of texts.	4	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.	3	7
Write for a wide range of contexts.	4	5	Evaporate a liquid food product using a falling or rising film evaporator.	4	20
Use language and communication in occupational learning programmes.	4	5	Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products.	4	8
<b>Field of Physical, Mathematical, Computer and Life Sciences</b>			Demonstrate knowledge of the functional components of milk.	4	7
Apply knowledge of sequences and series to interpret and solve problems in real and simulated situations	4	2	Evaluate the compositional and sensory quality of dried dairy products.	4	5
Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues	4	2			
Work with a wide range of patterns and transformations of functions and solve related problems	4	3			
Construct, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts	4	4			
Apply knowledge of statistics and probability to evaluate and communicate findings on life-related problems	4	5			
<b>Total available credits</b>		<b>36</b>	<b>Total available credits</b>		<b>52</b>

<b>Electives Choose a minimum of 62 credits</b>	<b>L</b>	<b>Cr</b>
Bulk pack dry food products in bags.	1	2
Mix or blend food raw materials for processing using automated equipment.	2	4
Operate and control the filling and seaming of cans for food or beverage products.	2	12
Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food or beverage products.	2	10
Collate and shrink-wrap packaged products using automated wrapping equipment.	2	4
Apply first line maintenance on food or beverage processing equipment.	3	10
Control lactose crystallisation in sweetened condensed milk or concentrated whey.	3	8
Manufacture a spray dried food powder from an evaporated mixture.	4	30
Manufacture dry food product by means of a roller dryer.	4	30
Manufacture instant dry powdered food product by means of a spray dryer.	4	30
Implement and maintain a food or beverage production quality assurance system.	4	8
Demonstrate knowledge of financial principles.	4	7
Demonstrate knowledge of industrial relationship principles and legislation.	4	4



**UNIT STANDARDS IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGE MANUFACTURING TECHNOLOGY: DRIED DAIRY PRODUCTS TECHNOLOGIST NQF 4****UNIT STANDARDS ON NQF LEVEL 1**

**Title 1:** Bulk pack dry food products in bags (Registered, Dairy SGB).

**UNIT STANDARDS ON NQF LEVEL 2**

**Title 1:** Mix or blend food raw materials for processing using automated equipment (Registered Food SGB).

**Title 2:** Operate and control the filling and seaming of cans for food or beverage products (Registered Dairy SGB).

**Title 3:** Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food or beverage products (Registered Dairy SGB).

**Title 4:** Collate and shrink-wrap packaged products using automated wrapping equipment (Registered Dairy SGB).

**UNIT STANDARDS ON NQF LEVEL 3**

**Title 1:** Evaluate the acceptability of raw milk in a silo for further processing (Registered, Dairy SGB).

**Title 2:** Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment (Registered, Food SGB).

**Title 3:** Apply first line maintenance on food or beverage processing equipment (To be sourced from NSB 06).

**Title 4:** Control lactose crystallisation in sweetened condensed milk or concentrated whey. (Registered, Dairy SGB).

**UNIT STANDARDS AT NQF LEVEL 4**

**Title 1:** Implement and maintain a food or beverage production quality assurance system (To be registered, Food SGB).

**Title 2:** Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products (Registered, Dairy SGB).

**Title 3:** Demonstrate knowledge of the functional components of milk (Registered, Dairy SGB).

**Title 4:** Evaporate a liquid food product using a falling or rising film evaporator (Registered, Dairy SGB).

**Title 5:** Evaluate the compositional and sensory quality of dried dairy products (Registered, Dairy SGB).

**Title 6:** Manufacture spray dried food powder from evaporated milk or an evaporated dairy mixture (Registered, Dairy SGB).

**Title 7:** Manufacture dry food product by means of a roller dryer (Registered, Dairy SGB).

**Title 8:** Manufacture instant food powdered product by means of a spray dryer (Registered, Dairy SGB).

- Title 9:** Demonstrate knowledge of financial principles (To be sourced from NSB 03).
- Title 10:** Demonstrate knowledge of industrial relationship principles and legislation (To be sourced from NSB 08).
- Title 11:** Engage in sustained oral communication and evaluate spoken texts (Registered, NSB 04).
- Title 12:** Read, analyse and respond to a variety of texts (Registered, NSB 04).
- Title 13:** Write for a wide range of contexts (Registered, NSB 04).
- Title 14:** Use language and communication in occupational learning programmes (Registered, NSB 04).
- Title 15:** Apply knowledge of sequences and series to interpret and solve problems in real and simulated situations (Registered, NSB 10).
- Title 16:** Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues (Registered, NSB 10).
- Title 17:** Work with a wide range of patterns and transformations of functions and solve related problems (Registered, NSB 10).
- Title 18:** Construct, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts (Registered, NSB 10).
- Title 19:** Apply knowledge of statistics and probability to evaluate and communicate findings on life-related problems (Registered, NSB 10).

No. 979

3 October 2001

**National Certificate in Food and Beverage Packaging NQF 3**

**Field:** Manufacturing, Engineering and Technology - NSB 06  
**Sub-field:** Manufacturing and Assembly  
**Level:** 3  
**Credit:** 121  
**Issue date:**  
**Review date:**

**Rationale of the qualification**

The typical learner identified to benefit from the qualification will be a person operating packaging equipment on an automated food and beverage packaging line. At present there is no such qualification and this qualification will fill a priority identified by the Food and Beverage SETA sector skills plan. This qualification will provide the basis of further learning in packaging management. This qualification will improve the effectiveness and productivity of the beverage manufacturing process in South Africa and thus provide an impetus for improved global competitiveness.

**Purpose of the qualification**

A person acquiring this qualification will be able to produce a safe, quality assured packaged food or beverage product by operating, controlling and maintaining the packaging line. This qualification will contribute to the full development of the learner within the food and beverages packaging environment by providing recognition, further mobility and transportability within the field of manufacturing and assembly. The skills, knowledge and understanding demonstrated within this qualification are essential for social and economic transformation and contribute to the upliftment and economic growth within the food and beverage packaging environment.

**Access to the Qualification**

Open access

**Learning assumed to be in place**

A knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 1 and 2.

**Exit level Outcomes**

Qualifying learners can:

**Exit level 1:** Operate the filling, closing and washing processes on an automated packaging line.

**Associated Assessment Criteria**

- The filling process of an automated packaging line is operated according to standard operating procedures.
- The closing process of an automated packaging line is operated according to standard operating procedures.

- The washing process of an automated packaging line is operated according to standard operating procedures.
- First line maintenance is performed on a food and beverage packaging line according to standard operating procedures.
- Product and packaging material change overs are performed on a food and beverage packaging line according to standard operating procedures.

**Exit level 2:** Perform aseptic packaging of a food product

**Associated Assessment Criteria**

- An aseptic forming, filling and sealing packaging line is operated and controlled according to standard operating procedures.
- Shrink-wrapping equipment is operated on an automated packaging line according to standard operating procedures.

**Exit level 3:** Heat-treat and label a packaged food or beverage product for extended shelf life.

**Associated Assessment Criteria**

- The packaged product is heat-treated according to the in container sterilisation or pasteurisation process.
- The labelling process on a food and beverage automated packaging line is operated according to standard operating procedures.

**Exit level 4:** Maintain safety, good manufacturing principles and quality assurance practices in a food or beverage packaging line environment.

**Associated Assessment Criteria**

- Apply knowledge and comprehension of occupational health, safety and environmental legislation relevant to the food or beverage packaging industry according to standard operating procedures.
- Apply knowledge and comprehension of food safety practices and procedures in food or beverage packaging according to standard operating procedures.
- Apply knowledge and comprehension of heating and cooling procedures used in a food or beverage packaging environment.
- Food or beverage packaging line quality assurance practices are monitored and controlled according to standard operating procedures.
- Food or beverage manufacturing equipment and surfaces are cleaned and sanitised according to standard operating procedures.

**International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian, New Zealand and German qualifications. International comparability could be found for a qualification on this level.

**Integrated Assessment**

The applied competence (practical, foundational and reflexive competencies) of this qualification will be able to produce a safe, quality assured food or beverage packaged product by operating, controlling and maintaining the packaging line.

The identifying and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflexive competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation, cleaning and sanitising, first line maintenance and quality assurance related to the packaging process in the workplace can be assessed in one application.

Applicable assessment tool(s) must be used to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment.

A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the

evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

### **Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

### **Articulation possibilities**

This qualification will enable the qualifying candidate to progress to learning for other national certificates in food and beverages processing on NQF 3 since the exit level outcome maintain food safety, good manufacturing principles and quality assurance practices in a food manufacturing environment and unit standards on supply chain management, business principles and first line maintenance are core to all the national certificates in food and beverages processing on NQF 3.

This qualification will enable the qualifying learner to progress to learning towards the national certificate in food and beverages processing at NQF level 3, a process artisan NQF level 4, national certificate in food and beverage manufacturing supervision NQF 4 or national diploma in food and beverage management NQF 5.

### **Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

### **Criteria for registration of assessors**

For an applicant to register as an assessor, the applicant needs:

- Well developed interpersonal skills, subject matter and assessment experience.
- The assessor needs to be competent in the planning and conducting assessment of learning outcomes as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5. The subject matter experience must be well developed with in the field of packaging.
- A similar qualification with a minimum of 6-12 months field experience after he/she has completed the qualification or,  
a packaging diploma on level 5 or higher.
- The subject matter experience of the assessor can be established by recognition of prior learning.
- Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.
- Detailed documentary proof of educational qualification, practical training undergone, and experience gained by the applicant must be provided (Portfolio of evidence)



## National Certificate in Food and Beverage Packaging NQF 3 121 credits

Fundamental		L	Cr	Core		L	Cr
<b>Field of Communication and Language</b>				Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment.		2	4
Accommodate audience and context needs in oral communication.		3	5	Operate closing process on a food and beverages automated packaging line		2	8
Interpret and use information from texts.		3	5	Operate washing process on a food and beverages automated packaging line		2	10
Write texts for a range of communicative context.		3	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.		3	7
Use language and communications in occupational learning programmes.		3	5	Monitor & control quality assurance practices in a food or beverage manufacturing environment.		3	4
<b>Field of Physical, Mathematical, Computer and Life Sciences</b>				Demonstrate an understanding of supply chain management.		3	3
Produce and use spreadsheets for business.		3	5	Demonstrate understanding of introductory business principles.		3	5
Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways.		3	2	Apply first line maintenance on food or beverage processing equipment.		3	10
Use mathematics to investigate and monitor the financial aspects of personal, business and national issues.		3	2	Operate filling process on a food and beverages automated packaging line.		3	18
Work with a range of patterns of basic functions and solve related problems.		3	3				
Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts.		3	4				
Demonstrate knowledge of introductory principles of chemistry and physics.		2	4				
<b>Total</b>			<b>40</b>	<b>Total</b>			<b>69</b>

<b>Electives Choose a minimum of 12 credits</b>	<b>L</b>	<b>Cr</b>
Outer-pack and palletise food or beverage containers manually.	1	2
Control and maintain packaging line hoppers.	1	3
Operate the inspection and coding process on a food and beverages automated packaging line	2	12
Operate unpacking process on a food and beverages automated packaging line	2	8
Operate the shrink-wrapping equipment on a food and beverages automated packaging line	2	12
Operate packaged product pasteurising process on a food and beverages automated packaging line	2	8
Package food products using automated electronic weigh head systems.	2	15
Operate packing process on a food and beverages automated packaging line	2	8
Operate and control the tamperproof sealing of already filled and closed containers.	2	2
Operate and control aseptic forming, filling and sealing of containers for food or beverage products.	3	18
Operate labelling process on a food and beverages automated packaging line	3	12
Sterilise a food or beverage product using retorting equipment.	3	12

## **UNIT STANDARDS IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGE PACKAGING NQF 3**

### **UNIT STANDARDS ON NQF LEVEL 1**

**Title 1:** Outer-pack and palletise food or beverage containers manually (To be submitted by the Food SGB).

**Title 2:** Control and maintain packaging line hoppers (To be submitted by the Food SGB).

### **UNIT STANDARDS ON NQF LEVEL 2**

**Title 1:** Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment (Registered Food SGB).

**Title 2:** Operate closing process on a food and beverages automated packaging line (Registered Beverage SGB).

**Title 3:** Operate washing process on a food and beverages automated packaging line (Registered Beverage SGB).

**Title 4:** Operate the inspection and coding process on a food and beverages automated packaging line (Registered Beverage SGB).

**Title 5:** Operate unpacking process on a food and beverages automated packaging line (Registered Beverage SGB).

**Title 6:** Operate the shrink-wrapping equipment on a food and beverages automated packaging line (Registered Beverage SGB).

**Title 7:** Operate packaged product pasteurising process on a food and beverages automated packaging line (Registered Beverage SGB).

**Title 8:** Package food products using automated electronic weigh head systems (To be registered Food SGB).

**Title 9:** Operate packing process on a food and beverages automated packaging line (Registered Beverage SGB).

**Title 10:** Operate and control the tamperproof sealing of already filled and closed (To be registered Food SGB).

**Title 11:** Demonstrate knowledge of introductory principles of chemistry and physics (Registered Dairy SGB).

### **UNIT STANDARDS AT NQF LEVEL 3**

**Title 1:** Demonstrate an understanding of food or beverages safety practices and procedures in a food or beverages manufacturing environment (Registered Food SGB).

**Title 2:** Monitor & control quality assurance practices in a food or beverages manufacturing environment (Registered Food SGB).

**Title 3:** Operate filling process on a food and beverages automated packaging line (Registered Beverage SGB).

**Title 4:** Operate and control aseptic forming, filling and sealing of containers for food products (To be registered Dairy SGB).

**Title 5:** Operate labelling process on a food and beverages automated packaging line (Registered Beverage SGB).

- Title 6:** Sterilise a food or beverage product using retorting equipment (Registered Food SGB).
- Title 7:** Apply first line maintenance on food or beverage processing equipment (Sourced from NSB 6).
- Title 8:** Demonstrate understanding of supply chain management (Sourced from NSB 11).
- Title 9:** Demonstrate understanding of introductory business principles (Sourced from NSB 3).
- Title 10:** Accommodate audience and context needs in oral communication (Registered NSB 04).
- Title 11:** Interpret and use information from texts (Registered NSB 04).
- Title 12:** Write texts for a range of communicative context (Registered NSB 04).
- Title 13:** Use language and communications in an occupational learning programmes (Registered NSB 04).
- Title 14:** Produce and use spreadsheets for business (Registered NSB 10).
- Title 15:** Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways (Registered NSB 10).
- Title 16:** Use mathematics to investigate and monitor the financial aspects of personal, business and national issues (Registered NSB 10).
- Title 17:** Work with a range of patterns of basic functions and solve related problems (Registered NSB 10).
- Title 18:** Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts (Registered NSB 10).

No. 980

3 October 2001

**National Certificate in Food and Beverage Processing: Brewing Processing NQF 3****Field:** Manufacturing, Engineering and Technology - NSB 06**Sub-field:** Manufacturing and Assembly**Level:** 3**Credit:** 127**Issue date:****Review date:****Rationale of the qualification**

The typical learner identified to benefit from this qualification will be a person operating processing equipment in an automated brewing processing plant. At present there is no such qualification and this qualification will fill a priority identified by the Food and Beverage SETA sector skills plan. This qualification will provide the basis for further learning in production supervision and manufacturing management. This qualification will improve the effectiveness and productivity of the manufacturing process in the food and beverage sector in South Africa and thus provide an impetus for improved global competitiveness.

**Purpose of the qualification**

A person acquiring this qualification will be able to produce a safe, quality assured brewed product by operating, controlling and maintaining an automated brewing process.

This qualification will contribute to the full development of the learner within the food and beverages processing environment by providing recognition, further mobility and transportability within the field of manufacturing and assembly. The skills, knowledge and understanding demonstrated within this qualification are essential for social and economic transformation and contribute to the upliftment and economic growth within the brewing manufacturing and processing environment.

**Access to the Qualification**

Open access

**Learning assumed to be in place**

A knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 1 and 2.

**Exit level Outcomes**

Qualifying learners can:

**Exit level 1:** Operate the brewhouse plant and process

**Associated Assessment Criteria**

- Interpret production plans and schedules according to standard operating procedures
- Prepare all raw materials required for production according to standard operating procedures
- Operate the brewhouse plant and process according to standard operating procedures
- Clean and sanitise the brewhouse plant according to standard operating procedures
- Perform first line maintenance according to standard operating procedures

**Exit level 2:** Operate the beverage fermentation plant and process

**Associated Assessment Criteria**

- Interpret production plans and schedules according to standard operating procedures
- Prepare all raw materials required for production according to standard operating procedures
- Operate the beverage fermentation plant and process according to standard operating procedures
- Clean and sanitise the beverage fermentation plant according to standard operating procedures
- Perform first line maintenance according to standard operating procedures.

**Exit level 3:** Operate the beverage filtration plant and process

**Associated Assessment Criteria**

- Interpret production plans and schedules according to standard operating procedures
- Prepare all raw materials required for production according to standard operating procedures
- Operate the beverage filtration plant and process according to standard operating procedures
- Clean and sanitise the beverage filtration plant according to standard operating procedures
- Perform first line maintenance according to standard operating procedures.

**Exit level 4:** Maintain safety, good manufacturing principles and quality assurance practices in the beverage manufacturing environment.

**Associated Assessment Criteria**

- Apply knowledge and comprehension of occupational health, safety and environmental legislation relevant to brewing manufacturing industry according to standard operating procedures.
- Apply knowledge and comprehension of food safety practices and procedures in brewing manufacturing according to standard operating procedures.
- Apply knowledge and comprehension of heating and cooling procedures used in a brewing manufacturing environment.
- Brewing manufacturing quality assurance practices are monitored and controlled according to standard operating procedures.
- Brewing manufacturing equipment and surfaces are cleaned and sanitised according to standard operating procedures.

**International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian and New Zealand qualifications. International comparability could be found for a qualification on this level. On the New Zealand Qualifications Authority Framework a National Certificate in Food and related processing level 3 could be found to support this qualification.



**Integrated Assessment**

The applied competence (practical, foundational and reflexive competencies) of acquiring this qualification will be able to produce a safe, quality assured, brewed product by operating, controlling and maintaining the automated brewing processing plant.

The identifying and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflexive competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application.

Applicable assessment tool(s) must be used to establish the foundational, reflective and embedded knowledge related to problem solving and application of the world as a set of related systems within the processing environment.

A detailed portfolio of evidence is required to prove the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

**Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

**Articulation possibilities**

This qualification will enable the qualifying candidate to progress to learning for other national certificates in food and beverages processing on NQF 3 since the exit level outcome maintain food & beverage safety, good manufacturing principles and quality assurance practices in a food & beverage manufacturing environment and unit standards on supply chain management, business principles and first line maintenance are core to all the national certificates in food and beverages processing on NQF 3.

This qualification will enable the qualifying learner to progress to learning towards a process artisan qualification at NQF level 4, national certificate in food and beverage manufacturing supervision NQF 4 or national diploma in beverage science at NQF 5.

**Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

#### **Criteria for registration of assessors**

For an applicant to register as an assessor, the applicant needs:

- Well developed interpersonal skills, subject matter and assessment experience.
- The assessor needs to be competent in the planning and conducting assessment of learning outcomes as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5. The subject matter experience must be well developed with in the field of brewing processing.
- A similar qualification with a minimum of 6-12 months field experience after he/she has completed the qualification or,  
    A brewing qualification at level 5 or higher.
- The subject matter experience of the assessor can be established by recognition of prior learning.
- Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.
- Detailed documentary proof of educational qualification, practical training undergone, and experience gained by the applicant must be provided (Portfolio of evidence)

**National Certificate in Food and Beverage Processing: Brewing Processing NQF 3 127 credits**

Fundamental	Level	Credits	Core	Level	Credits
<b>Field of Communication and Language</b>			Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment	2	4
Accommodate audience and context needs in oral communication.	3	5	Demonstrate an understanding of heating and cooling procedures	3	4
Interpret and use information from texts.	3	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.	3	7
Write texts for a range of communicative context.	3	5	Monitor & control quality assurance practices in a food or beverage manufacturing environment.	3	4
Use language and communications in occupational learning programmes.	3	5	Apply first line maintenance on food or beverage processing equipment	3	10
<b>Field of Physical, Mathematical, Computer and Life Sciences.</b>			Demonstrate understanding of introductory business principles	3	4
Produce and use spreadsheets for business.	3	5	Demonstrate understanding of supply chain management	3	3
Demonstrate understanding of numbers and relationships among numbers and number systems in different ways.	3	2	Apply microbiological principles in a food or beverage environment	3	6
Use mathematics to investigate and monitor the financial aspects of personal, business and national issues.	3	2			
Work with a range of patterns of basic functions and solve related problems	3	3			
Describe, apply, analyse and calculate shape and motion in 2 and 3 dimensional space in different contexts.	3	4			
Demonstrate knowledge of introductory principles of chemistry and physics	2	4			
<b>Total</b>		<b>40</b>	<b>Total</b>		<b>42</b>

<b>Electives Choose a minimum of 45 credits</b>		
Operate raw material intake and storage plant and process	2	15
Operate beverage fermentation plant and process	3	20
Operate beverage filtration plant and process	3	30
Operate the beverage flash pasteurisation plant and process	3	10
Operate brew house plant and process	4	30

**UNIT STANDARDS IN NATIONAL CERTIFICATE FOOD AND BEVERAGE PROCESSING: BREWING PROCESSING NQF 3****UNIT STANDARDS ON NQF LEVEL 2**

- Title 1:** Operate raw material intake and storage plant and process.
- Title 2:** Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment (Registered Food SGB).
- Title 3:** Demonstrate knowledge of introductory principles of chemistry and physics (Registered Dairy SGB).

**UNIT STANDARDS AT NQF LEVEL 3**

- Title 1:** Operate beverage fermentation plant and process.
- Title 2:** Operate the beverage filtration plant and process
- Title 3:** Operate the beverage flash pasteurisation plant and process.
- Title 4:** Demonstrate an understanding of heating and cooling procedures (Registered Food SGB).
- Title 5:** Demonstrate an understanding of food or beverages safety practices and procedures in a food or beverage manufacturing environment (Registered Food SGB).
- Title 6:** Monitor & control quality assurance practices in a food or beverages manufacturing environment (Registered Food SGB).
- Title 7:** Apply microbiological principles in a food or beverages environment. (To be registered by Dairy SGB).
- Title 8:** Apply first line maintenance on food or beverages processing equipment (Sourced from NSB 6).
- Title 9:** Demonstrate understanding of supply chain management (Sourced from NSB 11).
- Title 10:** Demonstrate understanding of introductory business principles (Sourced from NSB 3).
- Title 11:** Accommodate audience and context needs in oral communication (Registered NSB 04).
- Title 12:** Interpret and use information from texts (Registered NSB 04).
- Title 13:** Write texts for a range of communicative context (Registered NSB 04).
- Title 14:** Use language and communications in an occupational learning programmes (Registered NSB 04).
- Title 15:** Produce and use spreadsheets for business (Registered NSB 10).
- Title 16:** Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways (Registered NSB 10).
- Title 17:** Use mathematics to investigate and monitor the financial aspects of personal, business and national issues (Registered NSB 10).
- Title 18:** Work with a range of patterns of basic functions and solve related problems (Registered NSB 10).
- Title 19:** Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts. (Registered NSB 10)

**UNIT STANDARDS AT NQF LEVEL 4**

- Title 1:** Operate brewhouse plant and process

## **UNIT STANDARDS AND SPECIFIC OUTCOMES NATIONAL CERTIFICATE FOOD AND BEVERAGE PROCESSING: BREWING PROCESSING NQF 3**

### **UNIT STANDARDS AT NQF LEVEL 2**

#### **1. Title: Operate raw material intake and storage plant and process.**

- Specific outcome 1.1:** Prepare the beverage raw material intake and storage plant for start-up  
**Specific outcome 1.2:** Operate the beverage raw material intake and storage plant.  
**Specific outcome 1.3:** Clean and sanitise the beverage raw material intake and storage plant.  
**Specific outcome 1.4:** Perform fist line maintenance

### **UNIT STANDARDS ON NQF LEVEL 3**

#### **1. Title: Operate the beverage filtration plant and process.**

- Specific outcome 1:** Prepare for beverage filtration plant for start-up  
**Specific outcome 2:** Operate the beverage filtration plant.  
**Specific outcome 3:** Clean and sanitise the beverage filtration plant.  
**Specific outcome 4:** Perform first line maintenance

#### **2. Title: Operate the beverage flash pasteurisation plant and process.**

- Specific outcome 1:** Prepare the beverage flash pasteurisation plant for start-up  
**Specific outcome 2:** Operate the beverage flash pasteurisation plant.  
**Specific outcome 3:** Clean and sanitise the beverage flash pasteurisation plant.  
**Specific outcome 4:** Perform first line maintenance

### **UNIT STANDARDS ON NQF LEVEL 4**

#### **1. Title: Operate the brewhouse plant and process.**

- Specific outcome 1:** Prepare brewhouse plant for start-up  
**Specific outcome 2:** Operate the brewhouse plant.  
**Specific outcome 3:** Clean and sanitise the brewhouse plant.  
**Specific outcome 4:** Perform first line maintenance



No. 981

3 October 2001

**National Certificate in Food and Beverage Processing: Malting Processing NQF 3****Field:** Manufacturing, Engineering and Technology - NSB 06**Sub-field:** Manufacturing and Assembly**Level:** 3**Credit:** 127**Issue date:****Review date:****Rationale of the qualification**

The typical learner identified to benefit from this qualification will be a person operating processing equipment in an automated malting processing plant. At present there is no such qualification and this qualification will fill a priority identified by the Food and Beverage SETA sector skills plan. This qualification will provide the basis for further learning in production supervision and manufacturing management. This qualification will improve the effectiveness and productivity of the manufacturing process in the food and beverage sector in South Africa and thus provide an impetus for improved global competitiveness.

**Purpose of the qualification**

A person acquiring this qualification will be able to produce a safe, quality assured malted product by operating, controlling and maintaining an automated malting process.

This qualification will contribute to the full development of the learner within the food and beverages processing environment by providing recognition, further mobility and transportability within the field of manufacturing and assembly. The skills, knowledge and understanding demonstrated within this qualification are essential for social and economic transformation and contribute to the upliftment and economic growth within the brewing manufacturing and processing environment.

**Access to the Qualification**

Open access

**Learning assumed to be in place**

A knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 1 and 2.

**Exit level Outcomes**

Qualifying learners can:

**Exit level 1:** Operate the maltings plant and process

**Associated Assessment Criteria**

- Interpret production plans and schedules according to standard operating procedures
- Achieve process specifications according to standard operating procedures
- Operate the maltings plant and process according to standard operating procedures
- Clean and sanitise the brewhouse plant according to standard operating procedures
- Perform first line maintenance according to standard operating procedures

**Exit level 2:** Operate the raw material intake and storage plant and process

**Associated Assessment Criteria**

- Interpret production plans and schedules according to standard operating procedures
- Operate the raw material intake plant and process according to standard operating procedures
- Clean and sanitise the raw material intake and storage plant according to standard operating procedures
- Perform first line maintenance according to standard operating procedures.

**Exit level 3:** Maintain food safety, good manufacturing principles and quality assurance practices in the malting manufacturing environment.

**Associated Assessment Criteria**

- Apply knowledge and comprehension of occupational health, safety and environmental legislation relevant to the malting manufacturing industry according to standard operating procedures.
- Apply knowledge and comprehension of food safety practices and procedures in malting manufacturing according to standard operating procedures.
- Apply knowledge and comprehension of heating and cooling procedures used in a malting manufacturing environment.
- Malting manufacturing quality assurance practices are monitored and controlled according to standard operating procedures.
- Malting manufacturing equipment and surfaces are cleaned and sanitised according to standard operating procedures.

**International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian and New Zealand qualifications. International comparability could be found for a qualification on this level. On the New Zealand Qualifications Authority Framework a National Certificate in Food and related processing level 3 could be found to support this qualification.

**Integrated Assessment**

The applied competence (practical, foundational and reflexive competencies) of acquiring this qualification will be able to produce a safe, quality assured, brewed product by operating, controlling and maintaining the automated malting process.

The identifying and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflexive competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation to processing, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application.

Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment. A detailed portfolio of evidence is required to prove the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

### **Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

### **Articulation possibilities**

This qualification will enable the qualifying candidate to progress to learning for other national certificates in food and beverages processing on NQF 3 since the exit level outcome maintain food safety, good manufacturing principles and quality assurance practices in a food & beverage manufacturing environment and unit standards on supply chain management, business principles and first line maintenance are core to all the national certificates in food and beverages processing on NQF 3.

This qualification will enable the qualifying learner to progress to learning towards a process artisan qualification at NQF level 4, national certificate in food and beverage manufacturing supervision NQF 4 or national diploma in beverage science at NQF 5.

### **Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

### **Criteria for registration of assessors**

For an applicant to register as an assessor, the applicant needs:

- Well developed interpersonal skills, subject matter and assessment experience.

- The assessor needs to be competent in the planning and conducting assessment of learning outcomes as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5. The subject matter experience must be well developed with in the field of brewing processing.
- A similar qualification with a minimum of 6-12 months field experience after he/she has completed the qualification or,  
    A brewing or malting qualification at level 5 or higher.
- The subject matter experience of the assessor can be established by recognition of prior learning.
- Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.
- Detailed documentary proof of educational qualification, practical training undergone, and experience gained by the applicant must be provided (Portfolio of evidence)

<b>National Certificate in Food and Beverage Processing: Malting Processing NQF 3 127 credits</b>
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Fundamental	Level	Credits	Core	Level	Credits
<b>Field of Communication and Language</b>			Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment	2	4
Accommodate audience and context needs in oral communication.	3	5	Demonstrate an understanding of heating and cooling procedures	3	4
Interpret and use information from texts.	3	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.	3	7
Write texts for a range of communicative context.	3	5	Monitor & control quality assurance practices in a food or beverage manufacturing environment.	3	4
Use language and communications in occupational learning programmes.	3	5	Apply first line maintenance on food or beverage processing equipment	3	10
<b>Field of Physical, Mathematical, Computer and Life Sciences.</b>			Demonstrate understanding of introductory business principles	3	4
Produce and use spreadsheets for business.	3	5	Demonstrate understanding of supply chain management	3	3
Demonstrate understanding of numbers and relationships among numbers and number systems in different ways.	3	2	Apply microbiological principles in a food or beverage environment	3	6
Use mathematics to investigate and monitor the financial aspects of personal, business and national issues.	3	2			
Work with a range of patterns of basic functions and solve related problems	3	3			
Describe, apply, analyse and calculate shape and motion in 2 and 3 dimensional space in different contexts.	3	4			
Demonstrate knowledge of introductory principles of chemistry and physics	2	4			
<b>Total</b>		<b>40</b>	<b>Total</b>		<b>42</b>

<b>Electives: Choose a minimum of 45 credits</b>		
Operate raw material intake and storage plant and process	2	15
Operate the malting plant and process	3	30



## **UNIT STANDARDS IN NATIONAL CERTIFICATE FOOD AND BEVERAGE PROCESSING: MALTINGS PROCESSING NQF 3**

### **UNIT STANDARDS ON NQF LEVEL 2**

**Title 1:** Operate raw material intake and storage plant and process.

**Title 2:** Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment (Registered Food SGB).

**Title 3:** Demonstrate knowledge of introductory principles of chemistry and physics (Registered Dairy SGB).

### **UNIT STANDARDS AT NQF LEVEL 3**

**Title 1:** Operate a malting plant and process

**Title 2:** Demonstrate an understanding of heating and cooling procedures (Registered Food SGB).

**Title 3:** Demonstrate an understanding of food or beverages safety practices and procedures in a food or beverage manufacturing environment (Registered Food SGB).

**Title 4:** Monitor & control quality assurance practices in a food or beverages manufacturing environment (Registered Food SGB).

**Title 5:** Apply microbiological principles in a food or beverages environment. (To be registered by Dairy SGB).

**Title 6:** Apply first line maintenance on food or beverage processing equipment (Sourced from NSB 6).

**Title 7:** Demonstrate understanding of supply chain management (Sourced from NSB 11).

**Title 8:** Demonstrate understanding of introductory business principles (Sourced from NSB 3).

**Title 9:** Accommodate audience and context needs in oral communication (Registered NSB 04).

**Title 10:** Interpret and use information from texts (Registered NSB 04).

**Title 11:** Write texts for a range of communicative context (Registered NSB 04).

**Title 12:** Use language and communications in an occupational learning programmes (Registered NSB 04).

**Title 13:** Produce and use spreadsheets for business (Registered NSB 10).

**Title 14:** Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways (Registered NSB 10).

**Title 15:** Use mathematics to investigate and monitor the financial aspects of personal, business and national issues (Registered NSB 10).

**Title 16:** Work with a range of patterns of basic functions and solve related problems (Registered NSB 10).

**Title 17:** Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts. (Registered NSB 10)

## **UNIT STANDARDS AND SPECIFIC OUTCOMES NATIONAL CERTIFICATE FOOD AND BEVERAGE PROCESSING: BREWING PROCESSING NQF 3**

### **UNIT STANDARDS AT NQF LEVEL 2**

#### **1. Title: Operate raw material intake and storage plant and process.**

- |                              |  |
|------------------------------|--|
| <b>Specific outcome 1.1:</b> | Prepare the raw material intake and storage plant for start-up |
| <b>Specific outcome 1.2:</b> | Operate the raw material intake and storage plant.             |
| <b>Specific outcome 1.3:</b> | Clean and sanitise the raw material intake and storage plant.  |
| <b>Specific outcome 1.4:</b> | Perform first line maintenance                                 |

### **UNIT STANDARDS ON NQF LEVEL 3**

#### **1. Title: Operate the malting plant and process**

- |                            |   |
|----------------------------|---|
| <b>Specific outcome 1:</b> | Prepare for maltings plant for start-up |
| <b>Specific outcome 2:</b> | Operate the maltings plant.             |
| <b>Specific outcome 3:</b> | Clean and sanitise the maltings plant.  |
| <b>Specific outcome 4:</b> | Perform first line maintenance          |

No. 982

3 October 2001

**National Certificate Food and Beverage Processing: Soft Drinks Processing NQF 3**

**Field:** Manufacturing, Engineering and Technology - NSB 06  
**Sub-field:** Manufacturing and Assembly  
**Level:** 3  
**Credit:** 122  
**Issue date:**  
**Review date:**

**Rationale of the qualification**

The typical learner identified to benefit from this qualification will be a person operating processing equipment in an automated soft drinks processing plant. At present there is no such qualification and this qualification will fill a priority identified by the Food and Beverage SETA sector skills plan. This qualification will provide the basis for further learning in production supervision and manufacturing management. This qualification will improve the effectiveness and productivity of the manufacturing process in the food and beverage sector in South Africa and thus provide an impetus for improved global competitiveness.

**Purpose of the qualification**

A person acquiring this qualification will be able to produce a safe, quality assured, soft drinks product by operating, controlling and maintaining an automated soft drinks processing plant. This qualification will contribute to the full development of the learner within the soft drinks processing environment by providing recognition, further mobility and transportability within the field of manufacturing and assembly. The skills, knowledge and understanding demonstrated within this qualification are essential for social and economic transformation and contribute to the upliftment and economic growth within the soft drinks manufacturing and processing environment.

**Access to the Qualification**

Open access

**Learning assumed to be in place**

A knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 1 and 2.

**Exit level Outcomes**

Qualifying learners can:

Exit level 1: Operate a blending and mixing plant

**Associated Assessment Criteria**

- The soft drinks blending and mixing plant and process is operated and controlled according to standard operating procedures.
- The soft drinks blending and mixing plant are cleaned and sanitised according to standard operating procedures.
- First line maintenance is performed on the soft drinks blending and mixing plant according to standard operating procedures.

**Exit level 2:** Maintain safety, good manufacturing principles and quality assurance practices in the beverage manufacturing environment.

**Associated Assessment Criteria**

- Apply knowledge and comprehension of occupational health, safety and environmental legislation relevant to the soft drinks manufacturing industry according to standard operating procedures.
- Apply knowledge and comprehension of safety practices and procedures in soft drinks manufacturing according to standard operating procedures.
- Apply knowledge and comprehension of heating and cooling procedures used in a soft drinks manufacturing environment.
- Soft drinks manufacturing quality assurance practices are monitored and controlled according to standard operating procedures.
- Soft drinks manufacturing equipment and surfaces are cleaned and sanitised according to standard operating procedures.

**International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian and New Zealand qualifications. International comparability could be found for a qualification on this level. On the New Zealand Qualifications Authority Framework a National Certificate in Food and related processing level 3 could be found to support this qualification.

**Integrated Assessment**

The applied competence (practical, foundational and reflexive competencies) of acquiring this qualification will be able to produce a safe, quality assured, soft drinks product by operating, controlling and maintaining an automated soft drinks processing plant.

The identifying and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflexive competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application.

Applicable assessment tool(s) must be used to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment.

A detailed portfolio of evidence is required to prove the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

### **Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

### **Articulation possibilities**

This qualification will enable the qualifying candidate to progress to learning for other national certificates in food and beverages processing on NQF 3 since the exit level outcome maintain safety, good manufacturing principles and quality assurance practices in a food or beverage manufacturing environment and unit standards on supply chain management, business principles and first line maintenance are core to all the national certificates in food and beverages processing on NQF 3.

This qualification will enable the qualifying learner to progress to learning towards the national certificate in food and beverages manufacturing technology or food and beverage manufacturing supervision at NQF level 4, a national certificate in food and beverage laboratory processes, a food and beverages packaging qualification at NQF level 3, process artisan NQF level 4, national certificate in food and beverage manufacturing supervision NQF 4 or national diploma in food and beverage management NQF 5.

### **Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

### **Criteria for registration of assessors**

For an applicant to register as an assessor, the applicant needs:

- Well developed interpersonal skills, subject matter and assessment experience.
- The assessor needs to be competent in the planning and conducting assessment of learning outcomes as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5. The subject matter experience must be well developed with in the field of wine processing.
- A similar qualification with a minimum of 6 -12 months field experience after he/she has completed the qualification, or  
A food science or technology qualification on level 6 or higher.
- The subject matter experience of the assessor can be established by recognition of prior learning.
- Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.
- Detailed documentary proof of educational qualification, practical training undergone, and experience gained by the applicant must be provided (Portfolio of evidence)



National Certificate in Food and Beverage Processing: Soft Drinks Processing NQF 3 122 credits					
Fundamental			Core		
	L	Cr		L	Cr
<b>Field of Communication and Language</b>			Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment.	2	4
Accommodate audience and context needs in oral communication.	3	5	Demonstrate an understanding of heating and cooling procedures.	3	4
Interpret and use information from texts.	3	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.	3	7
Write texts for a range of communicative context.	3	5	Monitor & control quality assurance practices in a food or beverage manufacturing environment.	3	4
Use language and communications in occupational learning programmes.	3	5	Apply first line maintenance on food or beverage processing equipment.	3	10
<b>Field of Physical, Mathematical, Computer and Life Sciences</b>			Demonstrate understanding of introductory business principles.	3	4
Produce and use spreadsheets for business.	3	5	Demonstrate understanding of supply chain management.	3	3
Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways.	3	2	Apply microbiological principles in a food or beverage environment.	3	6
Use mathematics to investigate and monitor the financial aspects of personal, business and national issues.	3	2			
Work with a range of patterns of basic functions and solve related problems.	3	3			
Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts.	3	4			
Demonstrate knowledge of introductory principles of chemistry and physics.	2	4			
<b>Total</b>		<b>40</b>	<b>Total</b>		<b>42</b>
<b>Electives Choose a minimum of 40 credits</b>	<b>L</b>	<b>Cr</b>			
Operate raw material intake and storage plant and process	2	15			
Operate the beverage flash pasteurisation plant and process	3	10			
Operate beverage blending and mixing plant and process	3	15			
Manufacture a UHT product	4	12			

## **UNIT STANDARDS IN NATIONAL CERTIFICATE FOOD AND BEVERAGE PROCESSING: SOFT DRINKS PROCESSING NQF 3**

### **UNIT STANDARDS ON NQF LEVEL 2**

- Title 1:** Operate raw material intake and storage plant and process.
- Title 2:** Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment (Registered Food SGB).
- Title 3:** Demonstrate knowledge of introductory principles of chemistry and physics (Registered Dairy SGB).

### **UNIT STANDARDS AT NQF LEVEL 3**

- Title 1:** Operate beverage blending and mixing plant and process.
- Title 2:** Operate the beverage flash pasteurisation plant and process.
- Title 3:** Demonstrate an understanding of heating and cooling procedures (Registered Food SGB).
- Title 4:** Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment (Registered Food SGB).
- Title 5:** Monitor & control quality assurance practices in a food or beverage manufacturing environment (Registered Food SGB).
- Title 6:** Apply microbiological principles in a food or beverage environment. (To be registered by Dairy SGB).
- Title 7:** Apply first line maintenance on food or beverage processing equipment (Sourced from NSB 6).
- Title 8:** Demonstrate understanding of supply chain management (Sourced from NSB 11).
- Title 9:** Demonstrate understanding of introductory business principles (Sourced from NSB 3).
- Title 10:** Accommodate audience and context needs in oral communication (Registered NSB 04).
- Title 11:** Interpret and use information from texts (Registered NSB 04).
- Title 12:** Write texts for a range of communicative context (Registered NSB 04).
- Title 13:** Use language and communications in an occupational learning programmes (Registered NSB 04).
- Title 14:** Produce and use spreadsheets for business (Registered NSB 10).
- Title 15:** Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways (Registered NSB 10).
- Title 16:** Use mathematics to investigate and monitor the financial aspects of personal, business and national issues (Registered NSB 10).
- Title 17:** Work with a range of patterns of basic functions and solve related problems (Registered NSB 10).
- Title 18:** Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts. (Registered NSB 10)

### **UNIT STANDARDS AT NQF LEVEL 4**

- Title 1:** Manufacture a UHT product (Registered Dairy SGB)

**UNIT STANDARDS AND SPECIFIC OUTCOMES NATIONAL CERTIFICATE FOOD AND BEVERAGE PROCESSING: SOFT DRINKS PROCESSING NQF 3****UNIT STANDARDS ON NQF LEVEL 2****1. Title: Operate raw material intake and storage plant and process.**

- Specific outcome 1:** Prepare for the beverage raw material intake and storage plant for start-up.  
**Specific outcome 2:** Operate the beverage raw material intake and storage plant.  
**Specific outcome 3:** Clean and sanitise the beverage raw material intake and storage plant.  
**Specific outcome 4:** Perform first line maintenance

**UNIT STANDARDS ON NQF LEVEL 3****1. Title: Operate beverage blending and mixing plant and process.**

- Specific outcome 1:** Prepare beverage blending and mixing plant for start-up  
**Specific outcome 2:** Operate the beverage blending and mixing plant  
**Specific outcome 3:** Clean and sanitise the beverage blending and mixing plant  
**Specific outcome 4:** Perform first line maintenance

**2. Title: Operate the beverage flash pasteurisation plant and process.**

- Specific outcome 1:** Prepare the beverage flash pasteurisation plant for start-up  
**Specific outcome 2:** Operate the beverage flash pasteurisation plant  
**Specific outcome 3:** Clean and sanitise the the beverage flash pasteurisation plant  
**Specific outcome 4:** Perform first line maintenance

No. 983

3 October 2001

**National Certificate Food and Beverage Processing: Spirits Processing NQF 3**

**Field:** Manufacturing, Engineering and Technology - NSB 06  
**Sub-field:** Manufacturing and Assembly  
**Level:** 3  
**Credit:** 127  
**Issue date:**  
**Review date:**

**Rationale of the qualification**

The typical learner identified to benefit from this qualification will be a person operating processing equipment in an automated spirits processing plant. At present there is no such qualification and this qualification will fill a priority identified by the Food and Beverage SETA sector skills plan. This qualification will provide the basis for further learning in production supervision and manufacturing management. This qualification will improve the effectiveness and productivity of the manufacturing process in the food and beverage sector in South Africa and thus provide an impetus for improved global competitiveness.

**Purpose of the qualification**

A person acquiring this qualification will be able to produce a safe, quality assured, distilled product by operating, controlling and maintaining an automated spirit processing plant. This qualification will contribute to the full development of the learner within the spirits processing environment by providing recognition, further mobility and transportability within the field of manufacturing and assembly. The skills, knowledge and understanding demonstrated within this qualification are essential for social and economic transformation and contribute to the upliftment and economic growth within the spirits manufacturing and processing environment.

**Access to the Qualification**

Open access

**Learning assumed to be in place**

A knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 1 and 2.

**Exit level Outcomes**

Qualifying learners can:

Exit level 1: Operate a spirits fermentation and filtration plant and process.

**Associated Assessment Criteria**

- Raw materials used for the fermentation process of a spirits product is mixed and blended according to standard operating procedures.
- The spirits fermentation plant and process is operated and controlled according to standard operating procedures.
- The spirits filtration plant is operated and controlled according to standard operating procedures.
- The spirits fermentation and filtration plants are cleaned and sanitised according to standard operating procedures.
- First line maintenance is performed on the spirits fermentation and filtration plant according to standard operating procedures.

**Exit level 2:** Operate a spirits distillation plant and process

**Associated Assessment Criteria**

- The spirits distillation plant and process is operated and controlled according to standard operating procedures.
- The spirits distillation plant is cleaned and sanitised according to standard operating procedures.
- First line maintenance is performed on the spirits distillation plant according to standard operating procedures.

**Exit level 3:** Maintain safety, good manufacturing principles and quality assurance practices in the beverage manufacturing environment.

**Associated Assessment Criteria**

- Apply knowledge and comprehension of occupational health, safety and environmental legislation relevant to the spirits manufacturing industry according to standard operating procedures.
- Apply knowledge and comprehension of food or beverage safety practices and procedures in spirits manufacturing according to standard operating procedures.
- Apply knowledge and comprehension of heating and cooling procedures used in a spirits manufacturing environment.
- Spirits manufacturing quality assurance practices are monitored and controlled according to standard operating procedures.
- Spirits manufacturing equipment and surfaces are cleaned and sanitised according to standard operating procedures.

**International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian and New Zealand qualifications. International comparability could be found for a qualification on this level. On the New Zealand Qualifications Authority Framework a National Certificate in Food and related processing level 3 could be found to support this qualification.



### **Integrated Assessment**

The applied competence (practical, foundational and reflexive competencies) of acquiring this qualification will be able to produce a safe, quality assured, spirits product by operating, controlling and maintaining an automated spirits processing plant.

The identifying and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflexive competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application.

Applicable assessment tool(s) must be used to establish the foundational, reflective and embedded knowledge related to problem solving and application of the world as a set of related systems within the processing environment.

A detailed portfolio of evidence is required to prove the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

### **Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

### **Articulation possibilities**

This qualification will enable the qualifying candidate to progress to learning for other national certificates in food and beverages processing on NQF 3 since the exit level outcome maintain safety, good manufacturing principles and quality assurance practices in a food or beverage manufacturing environment and unit standards on supply chain management, business principles and first line maintenance are core to all the national certificates in food and beverages processing on NQF 3.

This qualification will enable the qualifying learner to progress to learning towards the national certificate in food and beverages manufacturing technology or food and beverage manufacturing supervision at NQF level 4, a national certificate in food and beverage laboratory processes, a food and beverages packaging qualification at NQF level 3, process artisan NQF level 4, national certificate in food and beverage manufacturing supervision NQF 4 or national diploma in food and beverage management NQF 5.

### **Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

### Criteria for registration of assessors

For an applicant to register as an assessor, the applicant needs:

- Well developed interpersonal skills, subject matter and assessment experience.
- The assessor needs to be competent in the planning and conducting assessment of learning outcomes as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5. The subject matter experience must be well developed with in the field of spirits processing.
- A similar qualification with a minimum of 6 -12 months field experience after he/she has completed the qualification, or  
A food science or technology qualification on level 6 or higher.
- The subject matter experience of the assessor can be established by recognition of prior learning.
- Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.
- Detailed documentary proof of educational qualification, practical training undergone, and experience gained by the applicant must be provided (Portfolio of evidence).

## National Certificate in Food and Beverage Processing: Spirits Processing NQF 3 127 credits

Fundamental	L	Cr	Core	L	Cr
<b>Field of Communication and Language</b>			Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment.	2	4
Accommodate audience and context needs in oral communication.	3	5	Demonstrate an understanding of heating and cooling procedures.	3	4
Interpret and use information from texts.	3	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.	3	7
Write texts for a range of communicative context.	3	5	Monitor & control quality assurance practices in a food or beverage manufacturing environment.	3	4
Use language and communications in occupational learning programmes.	3	5	Apply first line maintenance on food or beverage processing equipment.	3	10
<b>Field of Physical, Mathematical, Computer and Life Sciences</b>			Demonstrate understanding of introductory business principles.	3	4
Produce and use spreadsheets for business.	3	5	Demonstrate understanding of supply chain management.	3	3
Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways.	3	2	Apply microbiological principles in a food or beverage environment.	3	6
Use mathematics to investigate and monitor the financial aspects of personal, business and national issues.	3	2			
Work with a range of patterns of basic functions and solve related problems.	3	3			
Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts.	3	4			
Demonstrate knowledge of introductory principles of chemistry and physics.	2	4			
<b>Total</b>		<b>40</b>	<b>Total</b>		<b>42</b>

<b>Electives Choose a minimum of 45 credits</b>	<b>L</b>	<b>Cr</b>
Operate raw material intake and storage plant and process	2	15
Operate the beverage column-still distillation plant and process	3	30
Operate the beverage pot still distillation plant and process	3	25
Operate beverage fermentation plant and process	3	20
Operate beverage blending and mixing plant and process	3	15
Operate the beverage filtration plant and process	3	30
Operate the beverage maturation plant and process	2	10
Maintain the beverage wooden barrels	2	10
Operate the brewhouse plant and process	4	30

**UNIT STANDARDS IN NATIONAL CERTIFICATE FOOD AND BEVERAGE PROCESSING: SPIRITS PROCESSING NQF 3****UNIT STANDARDS ON NQF LEVEL 2**

- Title 1:** Operate raw material intake and storage plant and process.
- Title 2:** Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment (Registered Food SGB).
- Title 3:** Demonstrate knowledge of introductory principles of chemistry and physics (Registered Dairy SGB).
- Title 4:** Operate the beverage maturation plant and process.
- Title 5:** Maintain the beverage wooden barrels.

**UNIT STANDARDS AT NQF LEVEL 3**

- Title 1:** Operate beverage fermentation plant and process.
- Title 2:** Operate the beverage filtration plant and process.
- Title 3:** Operate beverage blending and mixing plant and process.
- Title 4:** Operate a beverage column-still distillation plant and process
- Title 5:** Operate a beverage pot-still distillation plant and process
- Title 6:** Demonstrate an understanding of heating and cooling procedures (Registered Food SGB).
- Title 7:** Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment (Registered Food SGB).
- Title 8:** Monitor & control quality assurance practices in a food or beverage manufacturing environment (Registered Food SGB).
- Title 9:** Apply microbiological principles in a food or beverage environment. (To be registered by Dairy SGB).
- Title 10:** Apply first line maintenance on food or beverage processing equipment (Sourced from NSB 6).
- Title 11:** Demonstrate understanding of supply chain management (Sourced from NSB 11).
- Title 12:** Demonstrate understanding of introductory business principles (Sourced from NSB 3).
- Title 13:** Accommodate audience and context needs in oral communication (Registered NSB 04).
- Title 14:** Interpret and use information from texts (Registered NSB 04).
- Title 15:** Write texts for a range of communicative context (Registered NSB 04).
- Title 16:** Use language and communications in an occupational learning programmes (Registered NSB 04).
- Title 17:** Produce and use spreadsheets for business (Registered NSB 10).
- Title 18:** Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways (Registered NSB 10).

- Title 19:** Use mathematics to investigate and monitor the financial aspects of personal, business and national issues (Registered NSB 10).
- Title 20:** Work with a range of patterns of basic functions and solve related problems (Registered NSB 10).
- Title 21:** Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts. (Registered NSB 10)

#### **UNIT STANDARDS AT NQF LEVEL 4**

- Title 1:** Operate brewhouse plant and process

### **UNIT STANDARDS AND SPECIFIC OUTCOMES NATIONAL CERTIFICATE FOOD AND BEVERAGE PROCESSING: SPIRITS PROCESSING NQF 3**

#### **UNIT STANDARDS ON NQF LEVEL 2**

##### **1. Title: Operate raw material intake and storage plant and process.**

- |                            |  |
|----------------------------|--|
| <b>Specific outcome 1</b>  | Prepare for the beverage raw material intake and storage plant for start-up. |
| <b>Specific outcome 2:</b> | Operate the beverage raw material intake and storage plant.                  |
| <b>Specific outcome 3:</b> | Clean and sanitise the beverage raw material intake and storage plant.       |
| <b>Specific outcome 4:</b> | Perform first line maintenance   |

##### **2. Title: Operate the beverage maturation plant and process.**

- |                            |   |
|----------------------------|---|
| <b>Specific outcome 1:</b> | Prepare for the beverage maturation plant for start-up. |
| <b>Specific outcome 2:</b> | Operate the beverage maturation plant.                  |
| <b>Specific outcome 3:</b> | Clean and sanitise the beverage maturation plant.       |
| <b>Specific outcome 4:</b> | Perform first line maintenance                          |

##### **3. Title: Maintain the beverage wooden barrels.**

- |                            |   |
|----------------------------|---|
| <b>Specific outcome 1:</b> | Prepare the beverage wooden barrel maintenance area |
| <b>Specific outcome 2:</b> | Maintain beverage wooden barrels                    |
| <b>Specific outcome 3:</b> | Perform first line maintenance                      |

#### **UNIT STANDARDS ON NQF LEVEL 3**

##### **1. Title: Operate the beverage fermentation plant and process**

- |                            |  |
|----------------------------|--|
| <b>Specific outcome 1:</b> | Prepare beverage fermentation plant for start-up   |
| <b>Specific outcome 2:</b> | Operate the beverage fermentation plant            |
| <b>Specific outcome 3:</b> | Clean and sanitise the beverage fermentation plant |
| <b>Specific outcome 4:</b> | Perform first line maintenance                     |

##### **2. Title: Operate the beverage column-still distillation plant and process**

- |                            |   |
|----------------------------|---|
| <b>Specific outcome 1:</b> | Prepare column-still distillation plant for start-up    |
| <b>Specific outcome 2:</b> | Operate the column-still distillation plant.            |
| <b>Specific outcome 3:</b> | Clean and sanitise the column-still distillation plant. |
| <b>Specific outcome 4:</b> | Perform first line maintenance                          |



**3. Title: Operate the beverage pot-still distillation plant and process**

- Specific outcome 1:** Prepare pot-still distillation plant for start-up  
**Specific outcome 2:** Operate the pot-still distillation plant.  
**Specific outcome 3:** Clean and sanitise the pot-still distillation plant.  
**Specific outcome 4:** Perform first line maintenance

**4. Title: Operate the beverage filtration plant and process.**

- Specific outcome 1:** Prepare for beverage filtration plant for start-up.  
**Specific outcome 2:** Operate the beverage filtration plant.  
**Specific outcome 3:** Clean and sanitise the beverage filtration plant and process.  
**Specific outcome 4:** Perform first line maintenance

**5. Title: Operate beverage blending and mixing plant and process.**

- Specific outcome 1:** Prepare beverage blending and mixing plant for start-up  
**Specific outcome 2:** Operate the beverage blending and mixing plant  
**Specific outcome 3:** Clean and sanitise the beverage blending and mixing plant  
**Specific outcome 4:** Perform first line maintenance

**UNIT STANDARDS ON NQF LEVEL 4****1. Title: Operate the brewhouse plant and process.**

- Specific outcome 1:** Prepare brewhouse plant for start-up  
**Specific outcome 2:** Operate the brewhouse plant.  
**Specific outcome 3:** Clean and sanitise the brewhouse plant.  
**Specific outcome 4:** Perform first line maintenance

No. 984

3 October 2001

**National Certificate Food and Beverage Processing: Wine Processing NQF 3**

**Field:** Manufacturing, Engineering and Technology - NSB 06  
**Sub-field:** Manufacturing and Assembly  
**Level:** 3  
**Credit:** 127  
**Issue date:**  
**Review date:**

**Rationale of the qualification**

The typical learner identified to benefit from this qualification will be a person operating processing equipment in an automated wine processing plant. At present there is no such qualification and this qualification will fill a priority identified by the Food and Beverage SETA sector skills plan. This qualification will provide the basis for further learning in production supervision and manufacturing management. This qualification will improve the effectiveness and productivity of the manufacturing process in the food and beverage sector in South Africa and thus provide an impetus for improved global competitiveness.

**Purpose of the qualification**

A person acquiring this qualification will be able to produce a safe, quality assured, wine product by operating, controlling and maintaining an automated wine processing plant. This qualification will contribute to the full development of the learner within the wine processing environment by providing recognition, further mobility and transportability within the field of manufacturing and assembly. The skills, knowledge and understanding demonstrated within this qualification are essential for social and economic transformation and contribute to the upliftment and economic growth within the wine manufacturing and processing environment.

**Access to the Qualification**

Open access

**Learning assumed to be in place**

A knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 1 and 2.

**Exit level Outcomes**

Qualifying learners can:

**Exit level 1:** Operate a wine fermentation and filtration plant and process.

**Associated Assessment Criteria**

- Raw materials used for the fermentation process of a wine product is mixed and blended according to standard operating procedures.

- The wine fermentation plant and process is operated and controlled according to standard operating procedures.
- The wine filtration plant is operated and controlled according to standard operating procedures.
- The wine fermentation and filtration plants are cleaned and sanitised according to standard operating procedures.
- First line maintenance is performed on the wine fermentation and filtration plant according to standard operating procedures.

#### **Exit level 2: Mature wine**

##### **Associated Assessment Criteria**

- The wine maturation plant and process is operated and controlled according to standard operating procedures.
- The wooden barrels for storing are maintained according to standard operating procedures.
- The wine maturation plant is cleaned and sanitised according to standard operating procedures.
- First line maintenance is performed on the maturation plant according to standard operating procedures.

#### **Exit level 3: Manufacture a wine product using the cap classique process.**

##### **Associated Assessment Criteria**

- The cap classique plant and process is operated and controlled according to standard operating procedures.
- The cap classique plant is cleaned and sanitised according to standard operating procedures.
- First line maintenance is performed on the cap classique plant according to standard operating procedures.

#### **Exit level 4: Maintain safety, good manufacturing principles and quality assurance practices in the beverage manufacturing environment.**

##### **Associated Assessment Criteria**

- Apply knowledge and comprehension of occupational health, safety and environmental legislation relevant to the wine manufacturing industry according to standard operating procedures.
- Apply knowledge and comprehension of food safety practices and procedures in wine manufacturing according to standard operating procedures.
- Apply knowledge and comprehension of heating and cooling procedures used in a wine manufacturing environment.
- Wine manufacturing quality assurance practices are monitored and controlled according to standard operating procedures.
- Wine manufacturing equipment and surfaces are cleaned and sanitised according to standard operating procedures.

#### **International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian and New Zealand qualifications. International comparability could be found for a qualification on this level. On the New Zealand Qualifications Authority Framework a National Certificate in Food and related processing level 3 could be found to support this qualification.

#### **Integrated Assessment**

The applied competence (practical, foundational and reflexive competencies) of acquiring this qualification will be able to produce a safe, quality assured, wine product by operating, controlling and maintaining an automated wine processing plant.

The identifying and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflexive competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application.

Applicable assessment tool(s) must be used to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment.

A detailed portfolio of evidence is required to prove the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

### **Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

### **Articulation possibilities**

This qualification will enable the qualifying candidate to progress to learning for other national certificates in food and beverages processing on NQF 3 since the exit level outcome maintain food safety, good manufacturing principles and quality assurance practices in a food manufacturing environment and unit standards on supply chain management, business principles and first line maintenance are core to all the national certificates in food and beverages processing on NQF 3.

This qualification will enable the qualifying learner to progress to learning towards the national certificate in food and beverages manufacturing technology or food and beverage manufacturing supervision at NQF level 4, a national certificate in food and beverage laboratory processes, a food and beverages packaging qualification at NQF level 3, process artisan NQF level 4, national certificate in food and beverage manufacturing supervision NQF 4 or national diploma in food and beverage management NQF 5.

### **Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

### **Criteria for registration of assessors**

For an applicant to register as an assessor, the applicant needs:

- Well developed interpersonal skills, subject matter and assessment experience.
- The assessor needs to be competent in the planning and conducting assessment of learning outcomes as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5. The subject matter experience must be well developed with in the field of wine processing.
- A similar qualification with a minimum of 6 -12 months field experience after he/she has completed the qualification, or
  - A food science or technology qualification on level 6 or higher.
- A diploma in unology NQF 5 or 6.
- The subject matter experience of the assessor can be established by recognition of prior learning.
- Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.

- Detailed documentary proof of educational qualification, practical training undergone, and experience gained by the applicant must be provided (Portfolio of evidence)



National Certificate in Food and Beverage Processing: Wine Processing NQF 3 127 credits					
Fundamental	L	Cr	Core	L	Cr
<b>Field of Communication and Language</b>			Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment.	2	4
Accommodate audience and context needs in oral communication.	3	5	Demonstrate an understanding of heating and cooling procedures.	3	4
Interpret and use information from texts.	3	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.	3	7
Write texts for a range of communicative context.	3	5	Monitor & control quality assurance practices in a food or beverage manufacturing environment.	3	4
Use language and communications in occupational learning programmes.	3	5	Apply first line maintenance on food or beverage processing equipment.	3	10
<b>Field of Physical, Mathematical, Computer and Life Sciences</b>			Demonstrate understanding of introductory business principles.	3	4
Produce and use spreadsheets for business.	3	5	Demonstrate understanding of supply chain management.	3	3
Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways.	3	2	Apply microbiological principles in a food or beverage environment.	3	6
Use mathematics to investigate and monitor the financial aspects of personal, business and national issues.	3	2			
Work with a range of patterns of basic functions and solve related problems.	3	3			
Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts.	3	4			
Demonstrate knowledge of introductory principles of chemistry and physics.	2	4			
<b>Total</b>		<b>40</b>	<b>Total</b>		<b>42</b>

<b>Electives Choose a minimum of 45 credits</b>	<b>L</b>	<b>Cr</b>
Operate raw material intake and storage plant and process	2	15
Operate beverage fermentation plant and process	3	20
Operate cold stabilisation storage plant and process	3	10
Operate the beverage filtration plant and process	3	30
Operate beverage blending and mixing plant and process	3	15
Operate the beverage maturation plant and process	2	10
Operate the beverage flash pasteurisation plant and process	3	10
Operate beverage cap classique plant and process	3	25
Maintain the beverage wooden barrels	2	10

## **UNIT STANDARDS IN NATIONAL CERTIFICATE FOOD AND BEVERAGE PROCESSING: WINE PROCESSING NQF 3**

### **UNIT STANDARDS ON NQF LEVEL 2**

- Title 1:** Operate raw material intake and storage plant and process.
- Title 2:** Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment (Registered Food SGB).
- Title 3:** Demonstrate knowledge of introductory principles of chemistry and physics (Registered Dairy SGB).
- Title 4:** Operate the beverage maturation plant and process.
- Title 5:** Maintain the beverage wooden barrels.

### **UNIT STANDARDS AT NQF LEVEL 3**

- Title 1:** Operate beverage fermentation plant and process.
- Title 2:** Operate cold stabilisation storage plant and process.
- Title 3:** Operate the beverage filtration plant and process.
- Title 4:** Operate beverage blending and mixing plant and process.
- Title 5:** Operate the beverage flash pasteurisation plant and process.
- Title 6:** Operate beverage cap classique plant and process.
- Title 7:** Demonstrate an understanding of heating and cooling procedures (Registered Food SGB).
- Title 8:** Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment (Registered Food SGB).
- Title 9:** Monitor & control quality assurance practices in a food or beverage manufacturing environment (Registered Food SGB).
- Title 10:** Apply microbiological principles in a food or beverage environment. (To be registered by Dairy SGB).
- Title 11:** Apply first line maintenance on food or beverage processing equipment (Sourced from NSB 6).
- Title 12:** Demonstrate understanding of supply chain management (Sourced from NSB 11).
- Title 13:** Demonstrate understanding of introductory business principles (Sourced from NSB 3).
- Title 14:** Accommodate audience and context needs in oral communication (Registered NSB 04).
- Title 15:** Interpret and use information from texts (Registered NSB 04).
- Title 16:** Write texts for a range of communicative context (Registered NSB 04).
- Title 17:** Use language and communications in an occupational learning programmes (Registered NSB 04).
- Title 18:** Produce and use spreadsheets for business (Registered NSB 10).
- Title 19:** Demonstrate understanding of numbers and relationships among numbers and number

systems, and represent numbers in different ways (Registered NSB 10).

- Title 20:** Use mathematics to investigate and monitor the financial aspects of personal, business and national issues (Registered NSB 10).
- Title 21:** Work with a range of patterns of basic functions and solve related problems (Registered NSB 10).
- Title 22:** Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts. (Registered NSB 10)

## **UNIT STANDARDS AND SPECIFIC OUTCOMES NATIONAL CERTIFICATE FOOD AND BEVERAGE PROCESSING: WINE PROCESSING NQF 3**

### **UNIT STANDARDS ON NQF LEVEL 2**

#### **1. Title: Operate raw material intake and storage plant and process.**

- |                            |  |
|----------------------------|--|
| <b>Specific outcome 1</b>  | Prepare for the beverage raw material intake and storage plant for start-up. |
| <b>Specific outcome 2:</b> | Operate the beverage raw material intake and storage plant.                  |
| <b>Specific outcome 3:</b> | Clean and sanitise the beverage raw material intake and storage plant.       |
| <b>Specific outcome 4:</b> | Perform first line maintenance   |

#### **2. Title: Operate the beverage maturation plant and process.**

- |                            |   |
|----------------------------|---|
| <b>Specific outcome 1:</b> | Prepare for the beverage maturation plant for start-up. |
| <b>Specific outcome 2:</b> | Operate the beverage maturation plant.                  |
| <b>Specific outcome 3:</b> | Clean and sanitise the beverage maturation plant.       |
| <b>Specific outcome 4:</b> | Perform first line maintenance                          |

#### **3. Title: Maintain the beverage wooden barrels.**

- |                            |   |
|----------------------------|---|
| <b>Specific outcome 1:</b> | Prepare the beverage wooden barrel maintenance area |
| <b>Specific outcome 2:</b> | Maintain beverage wooden barrels                    |
| <b>Specific outcome 3:</b> | Perform first line maintenance                      |

### **UNIT STANDARDS ON NQF LEVEL 3**

#### **1. Title: Operate the beverage fermentation plant and process**

- |                            |  |
|----------------------------|--|
| <b>Specific outcome 1:</b> | Prepare beverage fermentation plant for start-up   |
| <b>Specific outcome 2:</b> | Operate the beverage fermentation plant            |
| <b>Specific outcome 3:</b> | Clean and sanitise the beverage fermentation plant |
| <b>Specific outcome 4:</b> | Perform first line maintenance                     |

#### **2. Title: Operate cold stabilisation storage plant and process.**

- |                            |  |
|----------------------------|--|
| <b>Specific outcome 1:</b> | Prepare cold stabilisation and storage plant for start-up    |
| <b>Specific outcome 2:</b> | Operate the cold stabilisation and storage plant.            |
| <b>Specific outcome 3:</b> | Clean and sanitise the cold stabilisation and storage plant. |
| <b>Specific outcome 4:</b> | Perform first line maintenance                               |

#### **3. Title: Operate the beverage filtration plant and process.**

- |                            |   |
|----------------------------|---|
| <b>Specific outcome 1:</b> | Prepare for beverage filtration plant for start-up.           |
| <b>Specific outcome 2:</b> | Operate the beverage filtration plant.                        |
| <b>Specific outcome 3:</b> | Clean and sanitise the beverage filtration plant and process. |
| <b>Specific outcome 4:</b> | Perform first line maintenance                                |

**4. Title: Operate beverage blending and mixing plant and process.**

- Specific outcome 1:** Prepare beverage blending and mixing plant for start-up
- Specific outcome 2:** Operate the beverage blending and mixing plant
- Specific outcome 3:** Clean and sanitise the beverage blending and mixing plant
- Specific outcome 4:** Perform first line maintenance

**5. Title: Operate beverage cap classique plant and process.**

- Specific outcome 1:** Prepare the beverage cap classique plant for start-up
- Specific outcome 2:** Operate the beverage cap classique plant
- Specific outcome 3:** Clean and sanitise the the beverage cap classique plant
- Specific outcome 4:** Perform first line maintenance

**6. Title: Operate the beverage flash pasteurisation plant and process.**

- Specific outcome 1:** Prepare the beverage flash pasteurisation plant for start-up
- Specific outcome 2:** Operate the beverage flash pasteurisation plant
- Specific outcome 3:** Clean and sanitise the the beverage flash pasteurisation plant
- Specific outcome 4:** Perform first line maintenance

No. 985

3 October 2001

**National Certificate in Food and Beverages Processing: Cereals, Snacks, Pasta, Spices, Condiments and Culinary Processing NQF 3**

**Field:** Manufacturing, Engineering and Technology - NSB 06  
**Sub-field:** Manufacturing and Assembly  
**Level:** 3  
**Credit:** 120  
**Issue date:**  
**Review date:**

**Rationale of the qualification**

This qualification reflects the workplace-based needs of the food industry that are expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within a wide variety of food processing environment. The qualification further provides the flexibility to articulate in the food manufacturing and packaging environment.

The level of flexibility within the range of electives will allow the individual to pursue a specialised career within cereals or snacks or pasta or spices or condiments or culinary products processing environment, food and beverage quality control and assurance, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

**Purpose of the qualification**

A person acquiring this qualification will be able to manufacture a safe, quality range of food products by operating, controlling and maintaining a cereal or snacks or pasta or spices or condiments or culinary products processing line.

This qualification will contribute to the full development of the learner with in the food and beverages processing environment by providing recognition, further mobility and transportability within the field of manufacturing and assembly. The skills, knowledge and understanding demonstrated within this qualification are essential for social and economic transformation and contribute to the upliftment and economic growth within the food and beverage manufacturing and processing environment.

**Access to the Qualification**

Open access

**Learning assumed to be in place**

A knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 1 and 2.

**Exit level Outcomes**



Qualifying learners can:

Exit level 1: Prepare food raw materials for processing.

**Associated Assessment Criteria**

- Raw materials used during food manufacturing processes are pre-batched according to standard operating procedures.
- The weighing and measuring equipment is operated and controlled according to standard operating procedures.
- Mixtures of raw materials used for food manufacturing processes are mixed or blended using automated equipment according to standard operating procedures.

Exit level 2: Dry food products.

**Associated Assessment Criteria**

A range of dried food products can be manufactured according to standard operating procedures.

- Puff a food product using a continuous puffing process, and/or
- Extrude a food product using a continuous extruder, and/or
- Toast food products using processing equipment, and/or
- Manufacture a food product by means of a roller drier.

Exit level 3: Package a food product using packaging technologies.

**Associated Assessment Criteria**

- Plastic sachets or bags are formed, filled and hermetically sealed according to standard operating procedures.
- Packaged products are shrink-wrapped according to standard operating procedures.

Exit level 4: Maintain food safety, good manufacturing principles and quality assurance practices in a food manufacturing environment.

**Associated Assessment Criteria**

- Apply knowledge and comprehension of occupational health, safety and environmental legislation relevant to the food manufacturing industry according to standard operating procedures.
- Apply knowledge and comprehension of food safety practices and procedures in food manufacturing according to standard operating procedures.
- Apply knowledge and comprehension of heating and cooling procedures used in a food manufacturing environment.
- Food raw material and final products are frozen or chilled according to standard operating procedures.
- The temperature of food raw materials, final products and their environment is monitored and controlled for quality control purposes.
- Food manufacturing quality assurance practices are monitored and controlled according to standard operating procedures.
- Food manufacturing equipment and surfaces are cleaned and sanitised according to standard operating procedures.

**International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian and New Zealand qualifications. International comparability could be found for a qualification on this level. On the New Zealand Qualifications Authority Framework a National Certificate in Food and related processing level 3 could be found to support this qualification.

**Integrated Assessment**

The applied competence (practical, foundational and reflexive competencies) of this qualification will be achieved if a candidate is able to manufacture a safe, quality range of food products by operating, controlling and maintaining a cereal or snacks or pasta or spices or condiments or culinary products processing line.

The identifying and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflexive competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation to processing, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application.

Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment.

A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

**Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

**Articulation possibilities**

This qualification will enable the qualifying candidate to progress to learning for other national certificates in food and beverages processing on NQF 3 since the exit level outcome maintain food safety, good manufacturing principles and quality assurance practices in a food manufacturing environment and unit standards on supply chain management, business principles and first line maintenance are core to all the national certificates in food and beverages processing on NQF 3.

This qualification provides entry to qualifications in food and beverage manufacturing supervision, food and beverage quality control and assurance, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

**Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.

- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

#### **Criteria for registration of assessors**

For an applicant to register as an assessor, the applicant needs:

- Well developed interpersonal skills, subject matter and assessment experience.
- The assessor needs to be competent in the planning and conducting assessment of learning outcomes as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5. The subject matter experience must be well developed with in the field of cereals or snacks or pasta or spices or condiments or culinary processing.
- A similar qualification with a minimum of 6 -12 months field experience after he/she has completed the qualification, or
- A food science or technology qualification on level 6 or higher.
- The subject matter experience of the assessor can be established by recognition of prior learning.
- Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.
- Detailed documentary proof of educational qualification, practical training undergone, and experience gained by the applicant must be provided (Portfolio of evidence)

National Certificate in Food and Beverage Processing: Cereals, Snacks, Pasta, Spices, Condiments and Culinary Processing NQF 3 120 credits					
Fundamental			Core		
Field of Communication and Language	L	Cr		L	Cr
			Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment.	2	4
Accommodate audience and context needs in oral communication.	3	5	Demonstrate an understanding of heating and cooling procedures.	3	4
Interpret and use information from texts.	3	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.	3	7
Write texts for a range of communicative context.	3	5	Apply microbiological principles in a food or beverage environment.	3	6
Use language and communications in an occupational learning programmes.	3	5	Monitor and control quality assurance practices in a food or beverage manufacturing environment.	3	4
Field of Physical, Mathematical, Computer and Life Sciences					
			Demonstrate understanding of introductory business principles.	3	4
Produce and use spreadsheets for business.	3	5	Demonstrate an understanding of supply chain management.	3	3
Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways.	3	2	Apply first line maintenance on food or beverage processing equipment.	3	10
Use mathematics to investigate and monitor the financial aspects of personal, business and national issues.	3	2			
Work with a range of patterns of basic functions and solve related problems.	3	3			
Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts.	3	4			
Demonstrate knowledge of introductory principles of chemistry and physics.	2	4			
<b>Total</b>		<b>40</b>	<b>Total</b>		<b>42</b>
Electives Choose a minimum of 38 credits			L	Cr	
Clean and sanitise food manufacturing equipment and surfaces manually.			1	3	
Outer-pack and palletise food containers manually.			1	2	
Clean and sanitise a food processing system using an automated cleaning-in-place system.			2	5	
Pre-batch food raw materials.			2	4	
Mix or blend food raw materials for processing using automated equipment.			2	4	
Peel fruit and vegetables for further processing.			2	4	
Coat or dip a food product using automated equipment.			2	6	
Package food products using automated electronic weigh head systems.			2	15	
Collate and shrink-wrap packed products using automated equipment.			2	4	
Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food products.			2	10	
Grade and sort food raw materials.			3	6	
Fry food products using vacuum or atmospheric frying equipment.			3	20	
Shape fruit and vegetables for further processing.			3	10	
Extrude food products using a continuous extruder.			3	10	
Roast beans or nuts.			3	8	
Dry mill a food product.			3	8	
Puff a food product using continuous puffing processes.			3	9	
Cook food products using processing equipment.			3	8	
Toast a food product in an oven-toaster.			3	8	
Receive food raw materials.			3	8	
Freeze or chill a food product.			3	8	
Monitor the temperature of food products and their environment for quality control purposes.			3	2	
Fumigate food raw materials before further processing.			3	8	
Manufacture wafer products.			4	20	
Store and route food materials and products.			4	8	
Demonstrate an understanding of the relationship between micro-organisms and food spoilage.			4	8	
Determine the quality of food products using sensory evaluation.			4	10	
Manufacture a food product by means of a roller dryer.			4	30	

## **UNIT STANDARDS IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGES PROCESSING: CEREALS, SNACKS, PASTA, SPICES, CONDIMENTS AND CULINARY PROCESSING NQF 3**

### **UNIT STANDARDS ON NQF LEVEL 1**

- Title 1:** Clean and sanitise food manufacturing equipment and surfaces manually (Registered Dairy SGB).
- Title 2:** Outer-pack and palletise food or beverage containers manually.

### **UNIT STANDARDS ON NQF LEVEL 2**

- Title 1:** Package food products using automated electronic weigh head systems.
- Title 2:** Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment (Registered Food SGB).
- Title 3:** Clean and sanitise a food processing system using an automated cleaning-in-place system (Registered Food SGB).
- Title 4:** Pre-batch food raw materials (Registered Food SGB).
- Title 5:** Mix or blend food raw materials for processing using automated equipment (Registered Food SGB).
- Title 6:** Coat or dip a food product using automated equipment (Registered Food SGB).
- Title 7:** Peel fruit and vegetables for further processing (Registered Food SGB).
- Title 8:** Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food products (Registered Dairy SGB).
- Title 9:** Collate and shrink-wrap packed products using automated equipment (Registered Dairy SGB).
- Title 10:** Demonstrate knowledge of introductory principles of chemistry and physics (To be registered Dairy SGB).

### **UNIT STANDARDS AT NQF LEVEL 3**

- Title 1:** Puff a food product using continuous puffing processes.
- Title 2:** Cook food products using processing equipment.
- Title 3:** Toast or dry a food product in an oven-toaster.
- Title 4:** Demonstrate an understanding of heating and cooling procedures (Registered Food SGB).
- Title 5:** Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment (Registered Food SGB).
- Title 6:** Monitor and control quality assurance practices in a food or beverage manufacturing environment (Registered Food SGB).
- Title 7:** Apply microbiological principles in a food or beverage environment (To be registered by Dairy SGB)
- Title 8:** Monitor the temperature of food products and their environment for quality control purposes (Registered Food SGB).



- Title 9:** Grade and sort food raw materials (Registered Food SGB).
- Title 10:** Shape fruit and vegetables for further processing (Registered Food SGB).
- Title 11:** Extrude food products using a continuous extruder (Registered Food SGB).
- Title 12:** Roast beans or nuts (Registered Food SGB).
- Title 13:** Dry mill a food product (Registered Food SGB).
- Title 14:** Receive food raw materials (Registered Food SGB).
- Title 15:** Freeze or chill a food product (Registered Food SGB).
- Title 16:** Fumigate food raw materials before further processing (Registered Food SGB).
- Title 17:** Fry food products using vacuum or atmospheric frying equipment (Registered Food SGB).
- Title 18:** Apply continuous first line maintenance on food or beverage processing equipment (Sourced from NSB 6).
- Title 19:** Demonstrate understanding of supply chain management (Sourced from NSB 11).
- Title 20:** Demonstrate understanding of introductory business principles (Sourced from NSB 3).
- Title 21:** Accommodate audience and context needs in oral communication (Registered NSB 04).
- Title 22:** Interpret and use information from texts (Registered NSB 04).
- Title 23:** Write texts for a range of communicative context (Registered NSB 04).
- Title 24:** Use language and communications in an occupational learning programmes (Registered NSB 04).
- Title 25:** Produce and use spreadsheets for business (Registered NSB 10).
- Title 26:** Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways (Registered NSB 10).
- Title 27:** Use mathematics to investigate and monitor the financial aspects of personal, business and national issues (Registered NSB 10).
- Title 28:** Work with a range of patterns of basic functions and solve related problems (Registered NSB 10).
- Title 29:** Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts. (Registered NSB 10)

#### **UNIT STANDARDS AT NQF LEVEL 4**

- Title 1:** Demonstrate an understanding of the relationship between micro-organisms and food spoilage (Registered Food SGB).
- Title 2:** Determine the quality of food products using sensory evaluation (Registered Food SGB).
- Title 3:** Manufacture wafer products (Registered Food SGB).
- Title 4:** Store and route food materials and products (Registered Food SGB).
- Title 5:** Manufacture a food product by means of a roller dryer (Registered Dairy SGB).

**UNIT STANDARDS AND SPECIFIC OUTCOMES IN NATIONAL CERTIFICATE IN  
FOOD AND BEVERAGES PROCESSING: CEREALS, SNACKS, PASTA, SPICES,  
CONDIMENTS AND CULINARY PROCESSING NQF 3****UNIT STANDARDS AT NQF LEVEL 1****1. Title: Outer-pack and palletise food or beverage containers manually.**

- Specific outcome 1.1:** Demonstrate an understanding of outer-packaging and palletising of food or beverage containers  
**Specific outcome 1.2:** Outer-pack food or beverage containers manually  
**Specific outcome 1.3:** Palletise food or beverage containers manually  
**Specific outcome 1.4:** Perform end of outer-packaging and palletising procedures

**UNIT STANDARDS AT NQF LEVEL 2****1. Title: Package food products using automated electronic weigh head systems.**

- Specific outcome 1.1:** Demonstrate knowledge of electronic weigh head packaging systems,  
**Specific outcome 1.2:** Prepare to pack food products using automated electronic weigh head systems,  
**Specific outcome 1.3:** Pack food products using automated electronic weigh head systems,  
**Specific outcome 1.4:** Perform end-of-packaging procedures.

**UNIT STANDARDS AT NQF LEVEL 3****1. Title: Puff a food product using continuous puffing processes.**

- Specific outcome 1.1:** Demonstrate an understanding of puffing processes,  
**Specific outcome 1.2:** Prepare for puffing of a food product,  
**Specific outcome 1.3:** Puff food products,  
**Specific outcome 1.4:** Perform end of puffing procedures.

**2. Title: Cook food products using processing equipment.**

- Specific outcome 2.1:** Demonstrate an understanding of cooking.  
**Specific outcome 2.2:** Prepare for cooking.  
**Specific outcome 2.3:** Cook food products using a continuous processing equipment.  
**Specific outcome 2.4:** Perform end of cooking procedures.

**3. Title: Toast a food product in an oven-toaster.**

- Specific outcome 3.1:** Demonstrate an understanding of toasting processes.  
**Specific outcome 3.2:** Prepare for toasting of a food product.  
**Specific outcome 3.3:** Toast food products.  
**Specific outcome 3.4:** Perform end of toasting procedures.

No. 986

3 October 2001

**National Certificate in Food and Beverages Processing: Confectionery Processing NQF 3**

**Field:** Manufacturing, Engineering and Technology - NSB 06  
**Sub-field:** Manufacturing and Assembly  
**Level:** 3  
**Credit:** 125  
**Issue date:**  
**Review date:**

**Rationale of the qualification**

This qualification reflects the workplace-based needs of the food industry that are expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within the sugar and chocolate confectionery industry. The qualification further provides the flexibility to articulate in the food manufacturing and packaging environment.

The level of flexibility within the range of electives will allow the individual to pursue a career within specialised sugar or chocolate confectionery manufacturing, food and beverage manufacturing management, food and beverage quality control and assurance, food and beverage manufacturing supervision and food and beverage process artisan.

**Purpose of the qualification**

A person acquiring this qualification will be able to manufacture a safe, quality assured processed sugar or chocolate products by operating, controlling and maintaining a confectionery processing line, from the raw materials until the final product is processed.

This qualification will contribute to the full development of the learner within the food and beverages processing environment by providing recognition, further mobility and transportability within the field of manufacturing and assembly. The skills, knowledge and understanding demonstrated within this qualification are essential for social and economic transformation and contribute to the upliftment and economic growth within the food and beverage manufacturing and processing environment.

**Access to the Qualification**

Open access

**Learning assumed to be in place**

A knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 1 and 2.

**Exit level Outcomes**

Qualifying learners can:

Exit level 1: Cook confectionery mixtures.

**Associated Assessment Criteria**

- Raw materials used during confectionery manufacturing processes are pre-batched according to standard operating procedures.
- The weighing and measuring equipment is operated and controlled according to standard operating procedures.
- Mixtures of raw materials used for confectionery mixtures are mixed or blended using automated equipment according to standard operating procedures.
- Confectionery mixtures are handled and cooked according to confectionery processing principles and procedures.

Exit level 2: Temper sugar confectionery

**Associated Assessment Criteria**

- Confectionery mass is tempered according to standard operating procedures.

Exit level 3: Temper liquid chocolate

**Associated Assessment Criteria**

- Chocolate mass or compound is refined and conched according to chocolate processing principles.
- Liquid chocolate is tempered using manual or tempering equipment.

Exit level 4: Manufacture a range of sugar based confectionery products

**Associated Assessment Criteria**

A range of sugar confectionery products is manufactured according to standard operating procedures.

Range: 2 different processing technologies must be used.

- Confectionery tablets are forming and pressing, or
- Panning of confectionery products, or
- Starch moulded confectionery product technology, or
- Enrobing technology, or
- Single shot moulding process technology, or
- Layering technology.

Exit level 5: Manufacture a range of chocolate confectionery products

A range of chocolate confectionery products is manufactured according to standard operating procedures.

Range: 2 different processing technologies must be used.

- Hollow moulded chocolate technology, or
- Aerating technology, or
- Layering technology, or

Exit level 6: Maintain food safety, good manufacturing principles and quality assurance practices in a food manufacturing environment.

**Associated Assessment Criteria**

- Apply knowledge and comprehension of occupational health, safety and environmental legislation relevant to the food manufacturing industry according to standard operating procedures.
- Apply knowledge and comprehension of food safety practices and procedures in food manufacturing according to standard operating procedures.
- Apply knowledge and comprehension of heating and cooling procedures used in a food manufacturing environment.
- Food raw material and final products are frozen or chilled according to standard operating procedures.
- The temperature of food raw materials, final products and their environment is monitored and controlled for quality control purposes.
- Food manufacturing quality assurance practices are monitored and controlled according to standard operating procedures.
- Food manufacturing equipment and surfaces are cleaned and sanitised according to standard operating procedures.

**International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian and New Zealand qualifications. International comparability could be found for a qualification on this level. On the New Zealand Qualifications Authority Framework a National Certificate in Food and related processing level 3 could be found to support this qualification.

**Integrated Assessment**

The applied competence (practical, foundational and reflexive competencies) of this qualification will be able to manufacture a safe, quality assured processed sugar or chocolate products by operating, controlling and maintaining a confectionery processing line, from the raw materials until the final product is processed.

The identifying and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflexive competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation to processing, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application.

Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment.

A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

**Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

**Articulation possibilities**



This qualification will enable the qualifying candidate to progress to learning for other national certificates in food and beverages processing on NQF 3 since the exit level outcome maintain food safety, good manufacturing principles and quality assurance practices in a food manufacturing environment and unit standards on supply chain management, business principles and first line maintenance are core to all the national certificates in food and beverages processing on NQF 3.

This qualification provides entry to qualifications in food and beverage manufacturing supervision, food and beverage quality control and assurance, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

### **Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

### **Criteria for registration of assessors**

For an applicant to register as an assessor, the applicant needs:

Well developed interpersonal skills, subject matter and assessment experience.

The assessor needs to be competent in the planning and conducting assessment of learning outcomes as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5. The subject matter experience must be well developed with in the field of sugar or chocolate confectionery processing. The assessor must have completed:

- a similar qualification with a minimum of 6-12 months field experience after he/she has completed the qualification in that field confectionery processing, or
- a diploma in confectionery science on level 6 or higher.

The subject matter experience of the assessor can be established by recognition of prior learning.

Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.

Detailed documentary proof of educational qualification, practical training undergone, and experience gained by the applicant must be provided (Portfolio of evidence)

National Certificate in Food and Beverage Processing: Confectionery Processing NQF 3 126 credits					
Fundamental	L	Cr	Core	L	Cr
<b>Field of Communication and Language</b>			Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment.	2	4
Accommodate audience and context needs in oral communication.	3	5	Pre-batch food raw materials.	2	4
Interpret and use information from texts.	3	5	Mix or blend food raw materials for processing using automated equipment.	2	4
Write texts for a range of communicative context.	3	5	Demonstrate an understanding of heating and cooling procedures.	3	4
Use language and communications in an occupational learning programmes.	3	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.	3	7
<b>Field of Physical, Mathematical, Computer and Life Sciences</b>			Monitor the temperature of food products and their environment for quality control purposes.	3	2
Produce and use spreadsheets for business.	3	5	Monitor and control quality control practices in a food or beverage manufacturing environment.	3	4
Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways.	3	2	Cook confectionery mixtures using continuous equipment.	3	12
Use mathematics to investigate and monitor the financial aspects of personal, business and national issues.	3	2	Demonstrate an understanding of supply chain management.	3	3
Work with a range of patterns of basic functions and solve related problems.	3	3	Demonstrate understanding of introductory business principles.	3	4
Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts.	3	4	Apply first line maintenance on food or beverage processing equipment.	3	10
Demonstrate knowledge of introductory principles of chemistry and physics.	2	4	Determine the quality of food products using sensory evaluation (8)	4	4
<b>Total</b>		<b>40</b>	<b>Total</b>		<b>62</b>
<b>Electives Choose a minimum of 23 credits</b>			<b>L</b>	<b>Cr</b>	
Clean and sanitise food manufacturing equipment and surfaces manually.			1	3	
Clean and sanitise a food processing system using an automated cleaning-in-place system.			2	5	
Temper sugar confectionery mass.			2	4	
Cut and wrap confectionery using automated production equipment.			2	6	
Form and press confectionery tablets.			2	6	
Manufacture fondant.			2	6	
Collate and shrink-wrap packed products using automated equipment.			2	4	
Roast beans or nuts.			3	8	
Temper liquid chocolate using automated tempering equipment.			3	12	
Manufacture layered confectionery products.			3	8	
Mould confectionery products.			3	16	
Aerate a confectionery product.			3	20	
Manufacture confectionery products using a single shot moulding process.			3	16	
Enrobe confectionery products.			3	8	
Manufacture hollow moulded chocolate confectionery products.			3	8	
Temper liquid chocolate manually.			3	8	
Pan confectionery products.			4	18	
Manufacture starch moulded confectionery products.			4	12	
Manufacture wafer products.			4	20	
Refine and conch a chocolate mass or compound.			4	16	
Manufacture chocolate crumb.			4	35	
Demonstrate an understanding of the relationship between micro-organisms and food spoilage.			4	8	

**UNIT STANDARDS IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGES PROCESSING:  
CONFECTIONERY PROCESSING NQF 3****UNIT STANDARDS ON NQF LEVEL 1**

- Title 1:** Clean and sanitise food manufacturing equipment and surfaces manually (Registered Dairy SGB).

**UNIT STANDARDS ON NQF LEVEL 2**

- Title 1:** Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment (Registered Food SGB).
- Title 2:** Clean and sanitise a food processing system using an automated cleaning-in-place system (Registered Food SGB).
- Title 3:** Pre-batch food raw materials (Registered Food SGB).
- Title 4:** Mix or blend food raw materials for processing using automated equipment (Registered Food SGB).
- Title 5:** Temper sugar confectionery mass (Registered Food SGB).
- Title 6:** Cut and wrap confectionery using automated production equipment (Registered Food SGB).
- Title 7:** Form and press confectionery tablets (Registered Food SGB).
- Title 8:** Manufacture fondant (Registered Food SGB).
- Title 9:** Collate and shrink-wrap packed products using automated equipment (Registered Dairy SGB).
- Title 10:** Demonstrate knowledge of introductory principles of chemistry and physics (To be registered Dairy SGB).

**UNIT STANDARDS AT NQF LEVEL 3**

- Title 1:** Demonstrate an understanding of heating and cooling procedures (Registered Food SGB).
- Title 2:** Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment (Registered Food SGB).
- Title 3:** Monitor and control quality assurance practices in a food or beverage manufacturing environment (Registered Food SGB).
- Title 4:** Monitor the temperature of food products and their environment for quality control purposes (Registered Food SGB).
- Title 5:** Roast beans or nuts (Registered Food SGB).
- Title 6:** Temper liquid chocolate using automated tempering (Registered Food SGB).
- Title 7:** Manufacture layered confectionery products (Registered Food SGB).
- Title 8:** Mould confectionery products (Registered Food SGB).
- Title 9:** Aerate a confectionery product (Registered Food SGB).
- Title 10:** Manufacture confectionery products using a single shot moulding process (Registered

Food SGB).

- Title 11:** Enrobe confectionery products (Registered Food SGB).
- Title 12:** Manufacture hollow moulded chocolate confectionery products (Registered Food SGB).
- Title 13:** Apply continuous first line maintenance on food or beverage processing equipment (Sourced from NSB 6).
- Title 14:** Temper liquid chocolate manually (Registered Food SGB).
- Title 15:** Demonstrate understanding of supply chain management (Sourced from NSB 11).
- Title 16:** Demonstrate understanding of introductory business principles (Sourced from NSB 3).
- Title 17:** Accommodate audience and context needs in oral communication (Registered NSB 04).
- Title 18:** Interpret and use information from texts (Registered NSB 04).
- Title 19:** Write texts for a range of communicative context (Registered NSB 04).
- Title 20:** Use language and communications in an occupational learning programmes (Registered NSB 04).
- Title 21:** Produce and use spreadsheets for business (Registered NSB 10).
- Title 22:** Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways (Registered NSB 10).
- Title 23:** Use mathematics to investigate and monitor the financial aspects of personal, business and national issues (Registered NSB 10).
- Title 24:** Work with a range of patterns of basic functions and solve related problems (Registered NSB 10).
- Title 25:** Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts. (Registered NSB 10)

#### **UNIT STANDARDS AT NQF LEVEL 4**

- Title 1:** Demonstrate an understanding of the relationship between micro-organisms and food spoilage (Registered Food SGB).
- Title 2:** Determine the quality of food products using sensory evaluation (Registered Food SGB).
- Title 3:** Pan confectionery products (Registered Food SGB).
- Title 4:** Manufacture starch moulded confectionery products (Registered Food SGB).
- Title 5:** Manufacture wafer products (Registered Food SGB).
- Title 6:** Refine and conch a chocolate mass or compound (Registered Food SGB).
- Title 7:** Manufacture chocolate crumb (Registered Food SGB).

No. 987

3 October 2001

**National Certificate in Food and Beverages Processing: Oil and Fat Based Products Processing NQF  
3**

**Field:** Manufacturing, Engineering and Technology - NSB 06  
**Sub-field:** Manufacturing and Assembly  
**Level:** 3  
**Credit:** 125  
**Issue date:**  
**Review date:**

**Rationale of the qualification**

This qualification reflects the workplace-based needs of the food industry that are expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within the fats and oil industry. The qualification further provides the flexibility to articulate in the food manufacturing and packaging environment.

The qualification and the level of flexibility within the range of electives will allow the individual to pursue a specialised career within fat and oil based products processing, food and beverage packaging, food and beverage quality control and assurance, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

**Purpose of the qualification**

A person acquiring this qualification will be able to manufacture a safe, quality assured oil and fat based products by operating, controlling and maintaining a fat and oil based products manufacturing and packaging line, from the raw materials until the oil and fat based products are manufactured and packaged.

This qualification will contribute to the full development of the learner within the food and beverages processing environment by providing recognition, further mobility and transportability within the field of manufacturing and assembly. The skills, knowledge and understanding demonstrated within this qualification are essential for social and economic transformation and contribute to the upliftment and economic growth within the food and beverage manufacturing and processing environment.

**Access to the Qualification**

Open access

**Learning assumed to be in place**

A knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 1 and 2.

**Exit level Outcomes**

Qualifying learners can:



Qualifying learners can:

Exit level 1: Process an aqueous and oil emulsion.

**Associated Assessment Criteria**

- Apply knowledge and comprehension regarding the nature of oils and fats and its transformation into oil and fat based products.
- An aqueous in oil emulsion or oil in aqueous emulsion is processed according to emulsion principles.

Exit level 3: Pack a aqueous and oil emulsion product.

**Associated Assessment Criteria**

- Pack an aqueous and oil emulsion product is filled and sealed according to standard operating procedures. Perform 1 product and 1 packaging material changeovers.
- Quality control checks are done on closed products according to standard operating procedures.
- Where filling and closing takes place simultaneously with other production processes, it is synchronized according to standard operating procedures.

Exit level 4: Maintain food safety, good manufacturing principles and quality assurance practices in oil refinery manufacturing environment.

**Associated Assessment Criteria**

- Apply knowledge and comprehension of occupational health, safety and environmental legislation relevant to the oil refining industry according to standard operating procedures.
- Apply knowledge and comprehension of food safety practices and procedures in oil refining according to standard operating procedures.
- Apply knowledge and comprehension of heating and cooling procedures used in a oil refining environment.
- The temperature of raw materials, final products and their environment is monitored and controlled for quality control purposes.
- Oil refining quality assurance practices are monitored and controlled according to standard operating procedures.
- Food manufacturing equipment and surfaces are cleaned and sanitised according to standard operating procedures.

**International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian and New Zealand qualifications. International comparability could be found for a qualification on this level. On the New Zealand Qualifications Authority Framework a National Certificate in Food and related processing level 3 could be found to support this qualification.

**Integrated Assessment**

The applied competence (practical, foundational and reflexive competencies) of this qualification will be able to manufacture a safe, quality assured oil and fat based products by operating, controlling and maintaining a fat and oil based products manufacturing and packaging line, from the raw materials until the oil and fat based products are manufactured and packaged.

The identifying and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any

combination of practical, foundational and reflexive competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation to processing, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application.

Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment.

A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

### **Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

### **Articulation possibilities**

This qualification will enable the qualifying candidate to progress to learning for other national certificates in food and beverages processing on NQF 3 since the exit level outcome maintain food safety, good manufacturing principles and quality control practices in a food manufacturing environment and unit standards on supply chain management, business principles and first line maintenance are core to all the national certificates in food and beverages processing on NQF 3.

This qualification provides entry to qualifications in food and beverage manufacturing supervision, food and beverage quality control and assurance, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

### **Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

**Criteria for registration of assessors**

For an applicant to register as an assessor, the applicant needs:

- Well developed interpersonal skills, subject matter and assessment experience.
- The assessor needs to be competent in the planning and conducting assessment of learning outcomes as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5. The subject matter experience must be well developed with in the field of oil and fat based products manufacturing and processing
- A similar qualification with a minimum of 6 -12 months field experience after he/she has completed the qualification, or
- A food science or technology qualification on level 6 or higher.
- The subject matter experience of the assessor can be established by recognition of prior learning.
- Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.
- Detailed documentary proof of educational qualification, practical training undergone, and experience gained by the applicant must be provided (Portfolio of evidence)

**National Certificate in Food and Beverages Processing: Oil and Fat Based Products Processing NQF 3 125 credits**

Fundamental			Core		
Field of Communication and Language	Level	Credits		Level	Credits
Accommodate audience and context needs in oral communication.	3	5	Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment.	2	4
Interpret and use information from texts.	3	5	Demonstrate an understanding of heating and cooling procedures.	3	4
Write texts for a range of communicative context.	3	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.	3	7
Use language and communications in occupational learning programmes.	3	5	Monitor and control quality control practices in a food or beverage manufacturing environment.	3	4
<b>Field of Physical, Mathematical, Computer and Life Sciences</b>			Demonstrate an understanding of supply chain management.	3	3
Produce and use spreadsheets for business.	3	5	Demonstrate understanding of introductory business principles.	3	4
Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways.	3	2	Apply first line maintenance on food or beverage processing equipment.	3	10
Use mathematics to investigate and monitor the financial aspects of personal, business and national issues.	3	2	Demonstrate knowledge on the nature of oils and fats and its transformation into oil and fat based products.	4	6
Work with a range of patterns of basic functions and solve related problems.	3	3	Store and route food materials and products.	4	8
Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts.	3	4	Prepare and process an aqueous and oil emulsion.	4	15
Demonstrate knowledge of introductory principles of chemistry and physics.	2	4			
Demonstrate knowledge of introductory biological principles.	2	4			
<b>Total</b>		<b>44</b>	<b>Total</b>		<b>65</b>

Electives Choose a minimum of 16 credits			Level	Credits
Clean and sanitise a food processing system using an automated cleaning-in-place-system.	2	5		
Operate and control the forming and wrapping of a brick or cube shaped food product.	2	10		
Operate and control the filling and closing of glass or ridged plastic containers for food or beverage products.	2	10		
Bulk fill and close food or beverage products in containers.	2	5		
Mix or blend food raw materials for processing using automated equipment.	2	4		
Collate and shrink-wrap packed products using automated equipment.	2	4		
Prepare and process an aqueous phase for margarine manufacturing.	3	8		
Prepare and process the fat phase for margarine manufacturing.	3	8		
Monitor the temperature of food products and their environment for quality control purposes.	3	2		
Roast beans or nuts.	3	8		
Receive food raw materials.	3	8		
Freeze or chill a food product.	3	8		
Demonstrate an understanding of the relationship between micro-organisms and food spoilage.	4	8		
Determine the quality of food products using sensory evaluation.	4	10		

**UNIT STANDARDS IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGES PROCESSING: OIL AND FAT BASED PRODUCTS PROCESSING NQF 3****UNIT STANDARDS ON NQF LEVEL 2**

- Title 1:** Bulk fill and close food or beverage products in containers.
- Title 2:** Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment (Registered Food SGB).
- Title 3:** Clean and sanitise a food processing system using an automated cleaning-in-place system (Registered Food SGB).
- Title 4:** Demonstrate knowledge of introductory biological principles. (Sourced from NSB 10)
- Title 5:** Operate and control the filling and closing of glass or ridged plastic containers for food products (Registered Dairy SGB).
- Title 6:** Collate and shrink-wrap packed products using automated equipment (Registered Dairy SGB).
- Title 7:** Demonstrate knowledge of introductory principles of chemistry and physics (To be registered Dairy SGB).
- Title 8:** Operate and control the forming and wrapping of a brick or cube shaped food product (Registered Dairy SGB).
- Title 9:** Mix or blend food raw materials for processing using automated equipment. (Registered Food SGB).

**UNIT STANDARDS AT NQF LEVEL 3**

- Title 1:** Prepare and process an aqueous phase for margarine manufacturing.
- Title 2:** Prepare and process the fat phase for margarine manufacturing.
- Title 3:** Roast beans or nuts (Registered Food SGB).
- Title 4:** Receive food raw materials (Registered Food SGB).
- Title 5:** Monitor the temperature of food products and their environment for quality control purposes (Registered Food SGB).
- Title 6:** Freeze or chill a food product (Registered Food SGB).
- Title 7:** Demonstrate an understanding of heating and cooling procedures (Registered Food SGB).
- Title 8:** Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment (Registered Food SGB).
- Title 9:** Monitor and control quality assurance practices in a food or beverage manufacturing environment (Registered Food SGB).
- Title 10:** Apply continuous first line maintenance on food or beverage processing equipment (Sourced from NSB 6).
- Title 11:** Demonstrate understanding of supply chain management (Sourced from NSB 11).
- Title 12:** Demonstrate understanding of introductory business principles (Sourced from NSB 3).
- Title 13:** Accommodate audience and context needs in oral communication (Registered NSB 04).



- Title 14:** Interpret and use information from texts (Registered NSB 04).
- Title 15:** Write texts for a range of communicative context (Registered NSB 04).
- Title 16:** Use language and communications in an occupational learning programmes (Registered NSB 04).
- Title 17:** Produce and use spreadsheets for business (Registered NSB 10).
- Title 18:** Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways (Registered NSB 10).
- Title 19:** Use mathematics to investigate and monitor the financial aspects of personal, business and national issues (Registered NSB 10).
- Title 20:** Work with a range of patterns of basic functions and solve related problems (Registered NSB 10).
- Title 21:** Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts. (Registered NSB 10)

#### UNIT STANDARDS AT NQF LEVEL 4

- Title 1:** Prepare and process an aqueous and oil emulsion
- Title 2:** Demonstrate knowledge on the nature of oils and fats and its transformation into oil and fat based products.
- Title 3:** Determine the quality of food products using sensory evaluation (Registered Food SGB).
- Title 4:** Store and route food materials and products (Registered Food SGB).
- Title 5:** Demonstrate an understanding of the relationship between micro-organisms and food spoilage (Registered Food SGB).

#### UNIT STANDARDS AND SPECIFIC OUTCOMES IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGES PROCESSING: OIL AND FAT BASED PRODUCTS PROCESSING NQF 3

##### UNIT STANDARDS ON NQF LEVEL 2

##### 1. Title: Bulk fill and close food or beverage products in containers.

- Specific outcome 1.1:** Demonstrate knowledge of bulk filling and closing of food or beverage products in containers.
- Specific outcome 1.2:** Prepare to bulk fill and close food or beverage products.
- Specific outcome 1.3:** Bulk fills and closes a food or beverage product.
- Specific outcome 1.4:** Perform end of filling and closing procedures

##### UNIT STANDARDS ON NQF LEVEL 3

##### 1. Title: Prepare and process an aqueous phase for margarine manufacturing.

- Specific outcome 1.1:** Demonstrate an understanding of aqueous phase processing for margarine manufacturing.
- Specific outcome 1.2:** Prepare for aqueous phase processing.
- Specific outcome 1.3:** Process aqueous phase for margarine manufacturing.
- Specific outcome 1.4:** Perform end of aqueous phase processing.

##### 2. Title: Prepare and process the fat phase for margarine manufacturing.

- Specific outcome 2.1:** Demonstrate an understanding of processing the fat phase of margarine manufacturing.
- Specific outcome 2.2:** Prepare to process the fat phase.
- Specific outcome 2.3:** Process the fat phase.

**Specific outcome 2.4:** Perform end of fat phase preparation procedures.

#### **UNIT STANDARDS ON NQF LEVEL 4**

##### **1. Title: Prepare and process an aqueous and oil emulsion**

- Specific outcome 1.1:** Demonstrate an understanding of aqueous and oil emulsion.
- Specific outcome 1.2:** Prepare to process an aqueous and oil emulsion.
- Specific outcome 1.3:** Chill an aqueous and oil emulsion.
- Specific outcome 1.4:** Stabilise aqueous and oil emulsion.
- Specific outcome 1.5:** Perform end of aqueous and oil emulsion procedures.

##### **2. Title: Demonstrate knowledge on the nature of oils and fats and its transformation into oil and fat based products.**

- Specific outcome 2.1:** Demonstrate understanding of the transformation of natural fats and oils into commercial fats and oil based products.
- Specific outcome 2.2:** Demonstrate understanding of the physical-chemical nature of fats and oils
- Specific outcome 2.3:** Demonstrate understanding of the lipid chemical reactions used in oil and fat processing
- Specific outcome 2.4:** Demonstrate understanding of the physical properties of fats and oils.

No. 988

3 October 2001

**National Certificate in Food and Beverages Processing: Fish and Seafood Processing NQF 3**

**Field:** Manufacturing, Engineering and Technology - NSB 06  
**Sub-field:** Manufacturing and Assembly  
**Level:** 3  
**Credit:** 130  
**Issue date:**  
**Review date:**

**Rationale of the qualification**

This qualification reflects the workplace-based needs of the food industry that are expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within the fish and seafood industry. The qualification further provides the flexibility to articulate in the food manufacturing and packaging environment.

The level of flexibility within the range of electives will allow the individual to pursue a specialised career fish and seafood processing, food and beverage packaging, food and beverage quality control and assurance, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

**Purpose of the qualification**

A person acquiring this qualification will be able to manufacture a safe, quality assured fish or seafood products by operating, controlling and maintaining a fish or seafood processing line, from the raw materials until the fish or seafood products are manufactured.

This qualification will contribute to the full development of the learner with in the food and beverages processing environment by providing recognition, further mobility and transportability within the field of manufacturing and assembly. The skills, knowledge and understanding demonstrated within this qualification are essential for social and economic transformation and contribute to the upliftment and economic growth within the food and beverage manufacturing and processing environment.

**Access to the qualification**

Open access

**Learning assumed to be in place**

A knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 1 and 2.

**Exit level Outcomes**

Qualifying learners can:

Qualifying learners can:

Exit level 1: Prepare raw fish or seafood for further processing.

**Associated Assessment Criteria**

Raw fish or seafood is de-iced, thawed and de-scaled according to standard operating procedures.

Raw fish or seafood is flecked, filleted and portion cutted according to standard operating procedures.

Exit level 2: Manufacture minced fish or seafood products.

**Associated Assessment Criteria**

- Raw materials used during fish or seafood manufacturing processes are pre-batched according to standard operating procedures.
- The weighing and measuring equipment is operated and controlled according to standard operating procedures.
- Mixtures of raw materials used for fish or seafood manufacturing processes are mixed or blended using automated equipment according to standard operating procedures.
- Fish is minced using automated mincing equipment.
- Raw minced fish is formed using automated equipment.

Exit level 3: Manufacture a range of processed fish products manufactured and sold in the fish retail market.

**Associated Assessment Criteria**

A range of processed fish products is manufactured according to standard operating procedures.

Range: 2 different fish processing technologies must be used.

- Cured fish products, and/or
- Smoke fish and/or
- Salt and dry fish, and/or
- Sterilise a fish product, and/or
- Fry a fish product using atmospheric or vacuum frying equipment.

Exit level 4: Package and extend the shelf life a fish or life seafood using packaging technologies.

**Associated Assessment Criteria**

- Raw fish products or cuts are packed according to standard operating procedures.
- Life seafood is packed according to standard operating procedures.

Exit level 5: Maintain food safety, good manufacturing principles and quality assurance practices in a fish or seafood manufacturing environment.

**Associated Assessment Criteria**

- Apply knowledge and comprehension of occupational health, safety and environmental legislation relevant to the fish or seafood manufacturing industry according to standard operating procedures.
- Apply knowledge and comprehension of food safety practices and procedures in fish or seafood manufacturing according to standard operating procedures.
- Apply knowledge and comprehension of heating and cooling procedures used in a fish or seafood manufacturing environment.

- Fish or seafood raw material and final products are frozen or chilled according to standard operating procedures.
- The temperature of fish or seafood raw materials, final products and their environment is monitored and controlled for quality control purposes.
- Fish or seafood manufacturing quality assurance practices are monitored and controlled according to standard operating procedures.
- Food manufacturing equipment and surfaces are cleaned and sanitised according to standard operating procedures.

### **International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian and New Zealand qualifications. International comparability could be found for a qualification on this level. On the New Zealand Qualifications Authority Framework a National Certificate in Food and related processing level 3 could be found to support this qualification.

### **Integrated Assessment**

The applied competence (practical, foundational and reflexive competencies) of this qualification will be able to manufacture a safe, quality assured fish or seafood products by operating, controlling and maintaining a fish or seafood processing line, from the raw materials until the fish or seafood products are manufactured.

The identifying and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflexive competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation to processing, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application.

Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment.

A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

### **Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

### **Articulation possibilities**

This qualification will enable the qualifying candidate to progress to learning for other national certificates in food and beverages processing on NQF 3 since the exit level outcome maintain food safety, good manufacturing principles and quality assurance practices in a food manufacturing environment and unit standards on supply chain management, business principles and first line maintenance are core to all the national certificates in food and beverages processing on NQF 3.



This qualification provides entry to qualifications in food and beverage manufacturing supervision, food and beverage quality control and assurance, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

#### **Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

#### **Criteria for registration of assessors**

For an applicant to register as an assessor, the applicant needs:

- Well developed interpersonal skills, subject matter and assessment experience.
- The assessor needs to be competent in the planning and conducting assessment of learning outcomes as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5. The subject matter experience must be well developed with in the field of fish or seafood processing.
- The assessor must have completed:
  - a similar qualification with a minimum of 6 -12 months field experience after he/she has completed the qualification or,
  - a food science or technology qualification on level 5 or higher.

The subject matter experience of the assessor can be established by recognition of prior learning.

- Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.
- Detailed documentary proof of educational qualification, practical training undergone, and experience gained by the applicant must be provided (Portfolio of evidence).

National Certificate in Food and Beverage Processing: Fish and Seafood Processing NQF 3					
Fundamental			130 credits		
Field of Communication and Language	L	Cr	Core	L	Cr
Accommodate audience and context needs in oral communication.	3	5	Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment.	2	4
Interpret and use information from texts.	3	5	Mince fish or meat using automated mincing equipment.	2	4
Write texts for a range of communicative context.	3	5	Demonstrate an understanding of heating and cooling procedures.	3	4
Use language and communications in an occupational learning programmes.	3	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.	3	7
Field of Physical, Mathematical, Computer and Life Sciences			Monitor the temperature of food products and their environment for quality control purposes.	3	2
Produce and use spreadsheets for business.	3	5	Prepare raw fish or seafood for further processing.	3	12
Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways.	3	2	Freeze or chill a food product.	3	8
Use mathematics to investigate and monitor the financial aspects of personal, business and national issues.	3	2	Monitor and control quality assurance practices in a food or beverage manufacturing environment.	3	4
Work with a range of patterns of basic functions and solve related problems.	3	3	Demonstrate an understanding of supply chain management.	3	3
Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts.	3	4	Demonstrate understanding of introductory business principles.	3	4
Demonstrate knowledge of introductory principles of chemistry and physics.	2	4	Apply first line maintenance on food or beverage processing equipment.	3	10
Total		40	Demonstrate an understanding of the relationship between micro-organisms and food spoilage.	4	8
Electives (Choose a minimum of 20 credits)			Total		70
Clean and sanitise food manufacturing equipment and surfaces manually.			L	Cr	
Pack a food product under vacuum.			1	3	
Clean and sanitise a food processing system using an automated cleaning-in-place system.			1	1	
Fleck and fillet fish manually.			2	5	
Coat or dip a food product using automated equipment.			2	5	
Sort and handle raw seafood manually.			2	6	
Pre-batch food raw materials.			2	5	
Mix or blend food raw materials for processing using automated equipment.			2	4	
Trim and portion cut fish fillets manually.			2	4	
Collate and shrink-wrap packed products using automated equipment.			2	3	
Operate and control the filling and seaming of cans for food or beverage products.			2	4	
Cut fish by use of automated equipment.			2	12	
Salt and dry fish or meat.			3	8	
Smoke fish or meat.			3	4	
Manufacture cured fish or meat products.			3	8	
Form or fill raw minced fish or meat products using automated equipment.			3	8	
Process and pack live seafood.			3	5	
Sterilise a food or beverage product using retorting equipment.			3	8	
Fry food products using vacuum or atmospheric frying equipment.			3	12	
Determine the quality of food products using sensory evaluation.			3	20	
			4	10	

**UNIT STANDARDS IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGES PROCESSING: FISH AND SEAFOOD PROCESSING NQF 3****UNIT STANDARDS ON NQF LEVEL 1**

**Title 1:** Clean and sanitise food manufacturing equipment and surfaces manually (Registered Dairy SGB).

**Title 2:** Pack a food product under vacuum (Registered Dairy SGB).

**UNIT STANDARDS ON NQF LEVEL 2**

**Title 1:** Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment (Registered Food SGB).

**Title 2:** Clean and sanitise a food processing system using an automated cleaning-in-place system (Registered Food SGB).

**Title 3:** Pre-batch food raw materials (Registered Food SGB).

**Title 4:** Mix or blend food raw materials for processing using automated equipment (Registered Food SGB).

**Title 5:** Fleck and fillet fish manually (Registered Food SGB).

**Title 6:** Sort and handle raw seafood manually (Registered Food SGB).

**Title 7:** Trim and portion cut fish fillets manually (Registered Food SGB).

**Title 8:** Coat or dip a food product using automated equipment (Registered Food SGB).

**Title 9:** Mince fish or meat using automated mincing equipment (Registered Food SGB).

**Title 10:** Operate and control the filling and seaming of cans for food or beverage products (Registered Dairy SGB).

**Title 11:** Collate and shrink-wrap packed products using automated equipment (Registered Dairy SGB).

**Title 12:** Demonstrate knowledge of introductory principles of chemistry and physics (To be registered Dairy SGB).

**UNIT STANDARDS AT NQF LEVEL 3**

**Title 1:** Demonstrate an understanding of heating and cooling procedures (Registered Food SGB).

**Title 2:** Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment (Registered Food SGB).

**Title 3:** Monitor and control quality assurance practices in a food or beverage manufacturing environment (Registered Food SGB).

**Title 4:** Form or fill raw minced fish or meat products using automated equipment (Registered Food SGB).

**Title 5:** Freeze or chill a food product. (Registered Food SGB).

**Title 6:** Monitor the temperature of food products and their environment for quality control purposes (Registered Food SGB).

- Title 7:** Cut fish using automated equipment (Registered Food SGB).
- Title 8:** Process and pack life seafood (Registered Food SGB).
- Title 9:** Manufacture cured fish or meat products (Registered Food SGB).
- Title 10:** Smoke fish or meat (Registered Food SGB).
- Title 11:** Prepare raw fish or seafood for further processing (Registered Food SGB).
- Title 12:** Salt and dry fish or meat (Registered Food SGB).
- Title 13:** Sterilise a food or beverage product using retorting equipment (Registered Food SGB).
- Title 14:** Fry food products using vacuum or atmospheric frying equipment (Registered Food SGB).
- Title 15:** Apply continuous first line maintenance on food or beverage processing equipment (Sourced from NSB 6).
- Title 16:** Demonstrate understanding of supply chain management (Sourced from NSB 11).
- Title 17:** Demonstrate understanding of introductory business principles (Sourced from NSB 3).
- Title 18:** Accommodate audience and context needs in oral communication (Registered NSB 04).
- Title 19:** Interpret and use information from texts (Registered NSB 04).
- Title 20:** Write texts for a range of communicative context (Registered NSB 04).
- Title 21:** Use language and communications in an occupational learning programmes (Registered NSB 04).
- Title 22:** Produce and use spreadsheets for business (Registered NSB 10).
- Title 23:** Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways (Registered NSB 10).
- Title 24:** Use mathematics to investigate and monitor the financial aspects of personal, business and national issues (Registered NSB 10).
- Title 25:** Work with a range of patterns of basic functions and solve related problems (Registered NSB 10).
- Title 26:** Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts. (Registered NSB 10)

#### UNIT STANDARDS AT NQF LEVEL 4

- Title 1:** Demonstrate an understanding of the relationship between micro-organisms and food spoilage (Registered Food SGB).
- Title 2:** Determine the quality of food products using sensory evaluation (Registered Food SGB).

No. 989

3 October 2001

**National Certificate in Food and Beverages Processing: Fruit and Vegetables Processing NQF 3**

**Field:** Manufacturing, Engineering and Technology - NSB 06  
**Sub-field:** Manufacturing and Assembly  
**Level:** 3  
**Credit:** 140  
**Issue date:**  
**Review date:**

**Rationale of the qualification**

This qualification reflects the workplace-based needs of the food industry that are expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within the fruit and vegetable processing industry. The qualification further provides the flexibility to articulate in the food manufacturing and packaging environment.

The level of flexibility within the range of electives will allow the individual to pursue a specialised career fruit and vegetable processing, food and beverage packaging, food and beverage quality control and assurance, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

**Purpose of the qualification**

A person acquiring this qualification will be able to manufacture a safe, quality assured fish or seafood products by operating, controlling and maintaining fruit and vegetable processing line, from the raw materials until fruit and vegetable products are manufactured.

This qualification will contribute to the full development of the learner with in the food and beverages processing environment by providing recognition, further mobility and transportability within the field of manufacturing and assembly. The skills, knowledge and understanding demonstrated within this qualification are essential for social and economic transformation and contribute to the upliftment and economic growth within the food and beverage manufacturing and processing environment.

**Access to the Qualification**

Open access

**Learning assumed to be in place**

A knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 1 and 2.

**Exit level Outcomes**

Qualifying learners can:

Exit level 1: Process prepared fruit and vegetables.



**Associated Assessment Criteria**

- Food raw materials are graded and sorted according to product specifications.
- Fruit and vegetables are top-and-tailed, depitted, decomed, trimmed, diced, sliced, cutted, minced, pulped, blended or any combination thereof.
- Fruit and vegetables are fried, blanched, roasted, cooked, boiled or a combination thereof

Exit level 2: Extend the shelf-life of fruit and vegetable products.

**Associated Assessment Criteria**

Range: 2 different extended shelf-life technologies must be used.

- Sterilise a fruit or vegetable product using retorting equipment, or
- Fry fruit or vegetable products using vacuum or atmospheric frying equipment, or
- Freeze or chill a fruit or vegetable product, or
- Pasteurise a fruit or vegetable product by means of a batch pasteuriser, or
- Evaporate a fruit or vegetable product by means of atmospheric or vacuum type evapator. Or
- Dehydrate fruit or vegetable products.

Exit level 3: Package a food product using packaging technologies.

**Associated Assessment Criteria**

- Fruit or vegetable products are packed and sealed using suitable packaging technologies.
- Packaged products are shrink-wrapped according to standard operating procedures.

Exit level 4: Maintain food safety, good manufacturing principles and quality assurance practices in a food manufacturing environment.

**Associated Assessment Criteria**

- Apply knowledge and comprehension of occupational health, safety and environmental legislation relevant to the food manufacturing industry according to standard operating procedures.
- Apply knowledge and comprehension of food safety practices and procedures in food manufacturing according to standard operating procedures.
- Apply knowledge and comprehension of heating and cooling procedures used in a food manufacturing environment.
- Food raw material and final products are frozen or chilled according to standard operating procedures.
- The temperature of food raw materials, final products and their environment is monitored and controlled for quality control purposes.
- Food manufacturing quality assurance practices are monitored and controlled according to standard operating procedures.
- Food manufacturing equipment and surfaces are cleaned and sanitised according to standard operating procedures.

**International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian and New Zealand qualifications. International comparability could be found for a qualification on this level. On the New Zealand Qualifications Authority Framework a National Certificate in Food and related processing level 3 could be found to support this qualification.

**Integrated Assessment**

The applied competence (practical, foundational and reflexive competencies) of this qualification will be able to manufacture a safe, quality assured fish or seafood products by operating, controlling and maintaining fruit and vegetable processing line, from the raw materials until fruit and vegetable products are manufactured.

The identifying and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflexive competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation to processing, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application. Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment. A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

**Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

**Articulation possibilities**

This qualification will enable the qualifying candidate to progress to learning for other national certificates in food and beverages processing on NQF 3 since the exit level outcome maintain food safety, good manufacturing principles and quality assurance practices in a food manufacturing environment and unit standards on supply chain management, business principles and first line maintenance are core to all the national certificates in food and beverages processing on NQF 3.

This qualification provides entry to qualifications in food and beverage manufacturing supervision, food and beverage quality control and assurance, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

**Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.

- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

#### **Criteria for registration of assessors**

For an applicant to register as an assessor, the applicant needs:

- Well developed interpersonal skills, subject matter and assessment experience.
- The assessor needs to be competent in the planning and conducting assessment of learning outcomes as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5.
- The subject matter experience must be well developed with in the field of fruit and vegetable processing.
- The assessor must have completed:
  - a similar qualification with a minimum of 6 –12 months field experience after he/she has completed the qualification in that field of fruit and vegetable processing, or
  - A food science or technology qualification on level 6 or higher.
- The subject matter experience of the assessor can be established by recognition of prior learning.
- Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.
- Detailed documentary proof of educational qualification, practical training undergone, and experience gained by the applicant must be provided (Portfolio of evidence)

National Certificate in Food and Beverages Processing: Fruit and Vegetables Processing NQF 3 140 credits					
Fundamental			Core		
Field of Communication and Language	L	Cr		L	Cr
Accommodate audience and context needs in oral communication.	3	5	Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment.	2	4
Interpret and use information from texts.	3	5	Demonstrate an understanding of heating and cooling procedures.	3	4
Write texts for a range of communicative context.	3	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.	3	7
Use language and communications in an occupational learning programmes.	3	5	Grade and sort food raw materials.	3	6
Field of Physical, Mathematical, Computer and Life Sciences	3	5	Shape fruit and vegetables for further processing.	3	10
			Process prepared fruit and vegetables.	3	20
Produce and use spreadsheets for business.	3	5	Monitor and control quality control practices in a food or beverage manufacturing environment.	3	4
Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways.	3	2	Demonstrate an understanding of supply chain management (Sourced from NSB 11).	3	3
Use mathematics to investigate and monitor the financial aspects of personal, business and national issues.	3	2	Demonstrate understanding of introductory business principles (Sourced from NSB 3).	3	4
Work with a range of patterns of basic functions and solve related problems.	3	3	Apply first line maintenance on food or beverage processing equipment (Sourced from NSB 06).	3	10
Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts.	3	4	Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment.	2	4
Demonstrate knowledge of introductory principles of chemistry and physics.	2	4			
<b>Total</b>		<b>40</b>	<b>Total</b>		<b>76</b>
<b>Electives Choose a minimum of 24 credits</b>					
Clean and sanitise a food processing system using an automated cleaning-in-place system.	2	5			
Pre-batch food related raw materials.	2	4			
Mix or blend food raw materials for processing using automated equipment.	2	4			
Peel fruit and vegetables for further processing.	2	4			
Coat or dip a food product using automated equipment.	2	6			
Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food or beverage products.	2	10			
Operate and control the filling and seaming of cans for food or beverage products.	2	12			
Collate and shrink-wrap packed products using automated equipment.	2	4			
Operate and control the filling and closing of glass or rigid plastic containers for food or beverage products.	2	10			
Fumigate food raw materials before further processing.	3	8			
Monitor the temperature of food products and their environment for quality control purposes.	3	2			
Receive food raw materials.	3	8			
Sterilise a food or beverage product using retorting equipment.	3	12			
Fry food products using vacuum or atmospheric frying equipment.	3	20			
Freeze or chill a food product.	3	8			
Pasteurise a food product by means of a batch pasteuriser.	3	6			
Evaporate a food product by means of an atmospheric or vacuum type evaporator.	3	12			
Dehydrate food products.	3	10			
Store and route food materials and products.	4	8			
Demonstrate an understanding of the relationship between micro-organisms and food spoilage.	4	8			
Determine the quality of food products using sensory evaluation.	4	10			
Manufacture a food product by means of a roller dryer.	4	30			
Evaporate a liquid food product using a falling or rising film evaporator.	4	20			

## **UNIT STANDARDS IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGES PROCESSING: FRUIT AND VEGETABLES PROCESSING NQF 3**

### **UNIT STANDARDS ON NQF LEVEL 2**

- Title 1:** Operate and control the filling and seaming of cans for food or beverage products (Registered Dairy SGB).
- Title 2:** Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment (Registered Food SGB).
- Title 3:** Clean and sanitise a food processing system using an automated cleaning-in-place system (Registered Food SGB).
- Title 4:** Pre-batch food raw materials (Registered Food SGB).
- Title 5:** Mix or blend food raw materials for processing using automated equipment (Registered Food SGB).
- Title 6:** Coat or dip a food product using automated equipment (Registered Food SGB).
- Title 7:** Peel fruit and vegetables for further processing (Registered Food SGB).
- Title 8:** Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food or beverage products (Registered Dairy SGB).
- Title 9:** Collate and shrink-wrap packed products using automated equipment (Registered Dairy SGB).
- Title 10:** Demonstrate knowledge of introductory principles of chemistry and physics (To be registered Dairy SGB).
- Title 11:** Operate and control the filling and closing of glass or rigid plastic containers for food or beverage products (Registered Dairy SGB).

### **UNIT STANDARDS AT NQF LEVEL 3**

- Title 1:** Process prepared fruit and vegetables (Registered Food SGB)
- Title 2:** Pasteurise a food product by means of a batch pasteuriser (Registered Food SGB).
- Title 3:** Evaporate a food product by means of an atmospheric or vacuum type evaporator (Registered Food SGB).
- Title 4:** Demonstrate an understanding of heating and cooling procedures (Registered Food SGB).
- Title 5:** Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment (Registered Food SGB).
- Title 6:** Monitor and control quality assurance practices in a food or beverage manufacturing environment (Registered Food SGB).
- Title 7:** Monitor the temperature of food products and their environment for quality control purposes (Registered Food SGB).
- Title 8:** Grade and sort food raw materials (Registered Food SGB).
- Title 9:** Shape fruit and vegetables for further processing (Registered Food SGB).
- Title 10:** Dehydrate food products (Registered Food SGB)



- Title 11:** Sterilise a food or beverage product using retorting equipment (Registered Food SGB)
- Title 12:** Receive food raw materials (Registered Food SGB).
- Title 13:** Freeze or chill a food product (Registered Food SGB).
- Title 14:** Fumigate food raw materials before further processing (Registered Food SGB).
- Title 15:** Fry food products using vacuum or atmospheric frying equipment (Registered Food SGB).
- Title 16:** Apply continuous first line maintenance on food or beverage processing equipment (Sourced from NSB 6).
- Title 17:** Demonstrate understanding of supply chain management (Sourced from NSB 11).
- Title 18:** Demonstrate understanding of introductory business principles (Sourced from NSB 3).
- Title 19:** Accommodate audience and context needs in oral communication (Registered NSB 04).
- Title 20:** Interpret and use information from texts (Registered NSB 04).
- Title 21:** Write texts for a range of communicative context (Registered NSB 04).
- Title 22:** Use language and communications in an occupational learning programmes (Registered NSB 04).
- Title 23:** Produce and use spreadsheets for business (Registered NSB 10).
- Title 24:** Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways (Registered NSB 10).
- Title 25:** Use mathematics to investigate and monitor the financial aspects of personal, business and national issues (Registered NSB 10).
- Title 26:** Work with a range of patterns of basic functions and solve related problems (Registered NSB 10).
- Title 27:** Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts. (Registered NSB 10)

#### **UNIT STANDARDS AT NQF LEVEL 4**

- Title 1:** Demonstrate an understanding of the relationship between micro-organisms and food spoilage (Registered Food SGB).
- Title 2:** Determine the quality of food products using sensory evaluation (Registered Food SGB).
- Title 3:** Manufacture wafer products (Registered Food SGB).
- Title 4:** Store and route food materials and products (Registered Food SGB).
- Title 5:** Manufacture a food product by means of a roller dryer (Registered Dairy SGB).
- Title 6:** Evaporate a liquid food product using a falling or rising film evaporator (Registered Dairy SGB).

No. 990

3 October 2001

**National Certificate in Food and Beverages Processing: Meat Processing NQF 3****Field:** Manufacturing, Engineering and Technology - NSB 06**Sub-field:** Manufacturing and Assembly**Level:** 3**Credit:** 140**Issue date:****Review date:****Rationale of the qualification**

This qualification reflects the workplace-based needs of the meat processing industry that are expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within the meat industry. The qualification further provides the flexibility to articulate in the fish and seafood manufacturing and packaging environment.

The qualification and the level of flexibility within the range of electives will allow the individual to pursue a specialised career meat processing, food and beverage packaging, food and beverage quality control and assurance, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

**Purpose of the qualification**

A person acquiring this qualification will be able to manufacture a variety of safe, quality assured meat products by operating, controlling and maintaining a meat processing line, from the raw materials until the meat products are manufactured.

This qualification will contribute to the full development of the learner within the meat processing environment by providing recognition, further mobility and transportability within the field of manufacturing and assembly. The skills, knowledge and understanding demonstrated within this qualification are essential for social and economic transformation and contribute to the upliftment and economic growth within the meat, fish and seafood and the whole of the food manufacturing and processing environment.

**Access to the qualification**

Open access

**Learning assumed to be in place**

A knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 1 and 2.

**Exit level Outcomes**

Qualifying learners can:

Exit level 1: Manufacture minced meat products.

**Associated Assessment Criteria**

- Raw materials used during meat manufacturing processes are pre-batched according to standard operating procedures.
- The weighing and measuring equipment is operated and controlled according to standard operating procedures.
- Mixtures of raw materials used for meat manufacturing processes are mixed or blended using automated equipment according to standard operating procedures.
- Meat is minced using automated mincing equipment.
- Raw minced meat is formed using automated equipment.

Exit level 2: Manufacture a range of processed meat products manufactured and sold in the meat retail market.

**Associated Assessment Criteria**

A range of processed meat products is manufactured according to standard operating procedures.

Range: 2 different meat processing technologies must be used.

- Emulsified meat products, and/or
- Cured meat sausages, and/or
- Smoke meat, and/or
- Salt and dry meat, and/or
- Sterilise a meat product, and/or
- Fry a meat product using atmospheric or vacuum frying equipment.

Exit level 3: Split pig carcasses and debone various pork cuts for further processing.

**Associated Assessment Criteria**

- The pork carcass is prepared for spitting according to standard operating procedures.
- Pork carcass is split and cut into primal cuts according to standard operating procedures.
- Derind and debone various pork cuts using automated or semi-automated equipment.

Exit level 4: Break beef sides and debone primal beef cuts.

**Associated Assessment Criteria**

- The beef sides are broken and deboned according to standard operating procedures.
- Beef primal cuts are cut deboned and prepared according to standard operating procedures.

Exit level 5: Package and extend the shelf life a processed meat product using packaging technologies.

**Associated Assessment Criteria**

- Meat products or cuts are packaged according to standard operating procedures.

Exit level 6: Maintain food safety, good manufacturing principles and quality assurance practices in a meat manufacturing environment.

**Associated Assessment Criteria**

- Apply knowledge and comprehension of occupational health, safety and environmental legislation relevant to the meat manufacturing industry according to standard operating procedures.
- Apply knowledge and comprehension of food safety practices and procedures in meat manufacturing according to standard operating procedures.
- Apply knowledge and comprehension of heating and cooling procedures used in a meat manufacturing environment.
- Meat raw material and final products are frozen or chilled according to standard operating procedures.
- The temperature of meat raw materials, final products and their environment is monitored and controlled for quality control purposes.
- Meat manufacturing quality assurance practices are monitored and controlled according to standard operating procedures.
- Food manufacturing equipment and surfaces are cleaned and sanitised according to standard operating procedures.

**International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian and New Zealand qualifications. International comparability could be found for a qualification on this level. On the New Zealand Qualifications Authority Framework a National Certificate in Food and related processing level 3 could be found to support this qualification.

**Integrated Assessment**

The applied competence (practical, foundational and reflexive competencies) of this qualification will be achieved if a candidate is able to manufacture a variety of safe, quality assured meat products by operating, controlling and maintaining a meat processing line, from the raw materials until the meat products are manufactured.

The identifying and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflexive competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation to processing, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application.

Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment.

A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

**Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

**Articulation possibilities**

This qualification will enable the qualifying candidate to progress to learning for other national certificates in food and beverages processing on NQF 3 since the exit level outcome maintain food safety, good manufacturing principles and quality assurance practices in a food manufacturing environment and unit standards on supply chain management, business principles and first line maintenance are core to all the national certificates in food and beverages processing on NQF 3.

This qualification provides entry to qualifications in food and beverage manufacturing supervision, food and beverage quality control and assurance, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

### **Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

### **Criteria for registration of assessors**

For an applicant to register as an assessor, the applicant needs:

- Well developed interpersonal skills, subject matter and assessment experience.
- The assessor needs to be competent in the planning and conducting assessment of learning outcomes as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5. The subject matter experience must be well developed with in the field of meat processing.
- A similar qualification with a minimum of 6 -12 months field experience after he/she has completed the qualification, or
- A food science or technology qualification on level 6 or higher.
- The subject matter experience of the assessor can be established by recognition of prior learning.
- Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.
- Detailed documentary proof of educational qualification, practical training undergone, and experience gained by the applicant must be provided (Portfolio of evidence)



National Certificate in Food and Beverage Processing: Meat Processing NQF 3						140 credits	
Fundamental			Core			L	Cr
Field of Communication and Language						L	Cr
Accommodate audience and context needs in oral communication.	3	5	Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment.			2	4
Interpret and use information from texts.	3	5	Mince fish or meat using automated mincing equipment.			2	4
Write texts for a range of communicative context.	3	5	Demonstrate an understanding of heating and cooling procedures.			3	4
Use language and communications in an occupational learning programmes.	3	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.			3	7
Field of Physical, Mathematical, Computer and Life Sciences			Form or fill raw minced fish or meat products using automated equipment.			3	5
Produce and use spreadsheets for business.	3	5	Freeze or chill a food product.			3	8
Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways.	3	2	Monitor the temperature of food products and their environment for quality assurance purposes.			3	2
Use mathematics to investigate and monitor the financial aspects of personal, business and national issues.	3	2	Monitor and control quality assurance practices in a food or beverage manufacturing environment.			3	4
Work with a range of patterns of basic functions and solve related problems.	3	3	Demonstrate an understanding of supply chain management.			3	3
Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts.	3	4	Demonstrate understanding of introductory business principles.			3	4
Demonstrate knowledge of introductory principles of chemistry and physics.	2	4	Demonstrate an understanding of the relationship between micro-organisms and food spoilage purposes.			4	8
Total		40	Apply first line maintenance on food or beverage processing equipment.			3	10
Electives (Choose a minimum of 37 credits)			Total				63
Clean and sanitise food manufacturing equipment and surfaces manually.			L	Cr			
Pack a food product under vacuum.			1	3			
Clean and sanitise a food processing system using an automated cleaning-in-place system.			1	1			
Pre-batch food raw materials.			2	5			
Mix or blend food raw materials for processing using automated equipment.			2	4			
Prepare pig carcasses for splitting.			2	4			
Derind and debone various pork cuts.			2	3			
Sort pork cuts for further processing.			2	3			
Coat or dip a food product using automated equipment.			2	3			
Operate and control the filling and seaming of cans for food or beverage products.			2	6			
Collate and shrink-wrap packed products using automated equipment.			2	12			
Split and cut pig carcass into primal cuts.			2	4			
Break beef sides and debone primal beef cuts.			3	3			
Manufacture emulsified meat products.			3	8			
Manufacture cured fish or meat products.			3	8			
Smoke fish or meat.			3	8			
Salt and dry fish or meat.			3	8			
Sterilise a food or beverage product using retorting equipment.			3	4			
Fry food products using vacuum or atmospheric frying equipment.			3	12			
Determine the quality of food products using sensory evaluation.			3	20			
Manufacture fermented meat products.			4	10			
			4	10			

## **UNIT STANDARDS IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGE PROCESSING: MEAT PROCESSING NQF 3**

### **UNIT STANDARDS ON NQF LEVEL 1**

- Title 1:** Clean and sanitise food manufacturing equipment and surfaces manually (Registered Dairy SGB).
- Title 2:** Pack a food product under vacuum (Registered Dairy SGB).

### **UNIT STANDARDS ON NQF LEVEL 2**

- Title 1:** Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment (Registered Food SGB).
- Title 2:** Clean and sanitise a food processing system using an automated cleaning-in-place system (Registered Food SGB).
- Title 3:** Pre-batch food raw materials (Registered Food SGB).
- Title 4:** Mix or blend food raw materials for processing using automated equipment (Registered Food SGB).
- Title 5:** Prepare pig carcasses for splitting (Registered Food SGB).
- Title 6:** Derind and debone various pork cuts (Registered Food SGB).
- Title 7:** Sort deboned pork cuts for further processing (Registered Food SGB).
- Title 8:** Coat or dip a food product using automated equipment (Registered Food SGB).
- Title 9:** Mince fish or meat using automated mincing equipment (Registered Food SGB).
- Title 10:** Operate and control the filling and seaming of cans for food or beverage products (Registered Dairy SGB).
- Title 11:** Collate and shrink-wrap packed products using automated equipment (Registered Dairy SGB).
- Title 12:** Demonstrate knowledge of introductory principles of chemistry and physics (To be registered Dairy SGB).

### **UNIT STANDARDS AT NQF LEVEL 3**

- Title 1:** Demonstrate an understanding of heating and cooling procedures (Registered Food SGB).
- Title 2:** Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment (Registered Food SGB).
- Title 3:** Monitor and control quality assurance practices in a food or beverage manufacturing environment (Registered Food SGB).
- Title 4:** Form or fill raw minced fish or meat products using automated equipment (Registered Food SGB).
- Title 5:** Freeze or chill a food product. (Registered Food SGB).
- Title 6:** Monitor the temperature of food products and their environment for quality control purposes (Registered Food SGB).

- Title 7:** Split and cut pig carcasses into primal cuts (Registered Food SGB).
- Title 8:** Manufacture emulsified meat products (Registered Food SGB).
- Title 9:** Manufacture cured fish or meat products (Registered Food SGB).
- Title 10:** Smoke fish or meat (Registered Food SGB).
- Title 11:** Salt and dry fish or meat (Registered Food SGB).
- Title 12:** Sterilise a food or beverage product using retorting equipment (Registered Food SGB).
- Title 13:** Fry food products using vacuum or atmospheric frying equipment (Registered Food SGB).
- Title 14:** Apply continuous first line maintenance on food or beverage processing equipment (Sourced from NSB 6).
- Title 15:** Demonstrate understanding of supply chain management (Sourced from NSB 11).
- Title 16:** Demonstrate understanding of introductory business principles (Sourced from NSB 3).
- Title 17:** Accommodate audience and context needs in oral communication (Registered NSB 04).
- Title 18:** Interpret and use information from texts (Registered NSB 04).
- Title 19:** Write texts for a range of communicative context (Registered NSB 04).
- Title 20:** Use language and communications in an occupational learning programmes (Registered NSB 04).
- Title 21:** Produce and use spreadsheets for business (Registered NSB 10).
- Title 22:** Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways (Registered NSB 10).
- Title 23:** Use mathematics to investigate and monitor the financial aspects of personal, business and national issues (Registered NSB 10).
- Title 24:** Work with a range of patterns of basic functions and solve related problems (Registered NSB 10).
- Title 25:** Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts. (Registered NSB 10)

#### UNIT STANDARDS AT NQF LEVEL 4

- Title 1:** Demonstrate an understanding of the relationship between micro-organisms and food spoilage (Registered Food SGB).
- Title 2:** Determine the quality of food products using sensory evaluation (Registered Food SGB).
- Title 3:** Manufacture fermented meat sausages (Registered Food SGB).

No. 991

3 October 2001

**National Certificate in Food and Beverage Processing: Oil Refining NQF 3****Field:** Manufacturing, Engineering and Technology - NSB 06**Sub-field:** Manufacturing and Assembly**Level:** 3**Credit:** 140**Issue date:****Review date:****Rationale of the qualification**

This qualification reflects the workplace-based needs of the food industry that are expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within the fats and oil industry and especially within the oil refinery environment. The qualification further provides the flexibility to articulate in the food manufacturing and chemical industry.

The qualification and the level of flexibility within the range of electives will allow the individual to pursue a specialised career within oil refinery within the fat and oil processing environment, food and beverage packaging, food and beverage quality control and assurance, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

**Purpose of the qualification**

A person acquiring this qualification will be able to manufacture a safe, quality assured oil refined products by operating, controlling and maintaining an oil refinery line, from the raw materials until the oil is refined.

This qualification will contribute to the full development of the learner with in the food and beverages processing environment by providing recognition, further mobility and transportability within the field of manufacturing and assembly. The skills, knowledge and understanding demonstrated within this qualification are essential for social and economic transformation and contribute to the upliftment and economic growth within the food and beverage manufacturing and processing environment.

**Access to the Qualification**

Open access

**Learning assumed to be in place**

A knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 1 and 2.

**Exit level Outcomes**

Qualifying learners can:

Exit level 1: Prepare for oils for processing.

**Associated Assessment Criteria**

- Apply knowledge and comprehension regarding the nature of oils and fats and its transformation into oil and fat based products.
- Impurities for oils are removed according to standard operating procedures.
- Oils and food ingredients are blended for processing according to standard operating procedures.

Exit level 2: Convert edible oils into fats

**Associated Assessment Criteria**

- Crude oils are refined according to standard operating procedures.
- Edible oils are converted into fats using process equipment according to standard operating procedures.

Exit level 3: Bulk packaging of fats or refined oils

**Associated Assessment Criteria**

- Bulk containers for refined oils or fats products are filled and sealed according to standard operating procedures.

**Range:** Bulk fill and close the product for 30 minutes at an acceptable rate without deviations from the specifications in the filling and closing of the containers. Perform 1 product and 1 packaging material changeovers.

- Quality control checks are done on closed products according to standard operating procedures.
- Where filling and closing takes place simultaneously with other production processes, it is synchronized according to standard operating procedures.

Exit level 4: Maintain food safety, good manufacturing principles and quality assurance practices in oil refinery manufacturing environment.

**Associated Assessment Criteria**

- Apply knowledge and comprehension of occupational health, safety and environmental legislation relevant to the oil refining industry according to standard operating procedures.
- Apply knowledge and comprehension of food safety practices and procedures in oil refining according to standard operating procedures.
- Apply knowledge and comprehension of heating and cooling procedures used in a oil refining environment.
- The temperature of raw materials, final products and their environment is monitored and controlled for quality control purposes.
- Oil refining quality assurance practices are monitored and controlled according to standard operating procedures.
- Food manufacturing equipment and surfaces are cleaned and sanitised according to standard operating procedures.

**International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian and New Zealand qualifications. International comparability could be found for a qualification on this level. On the New Zealand Qualifications Authority Framework a National Certificate in Food and related processing level 3 could be found to support this qualification.



### **Integrated Assessment**

The applied competence (practical, foundational and reflexive competencies) of this qualification will be able to manufacture a safe, quality assured oil refined products by operating, controlling and maintaining an oil refinery line, from the raw materials until the oil is refined.

The identifying and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflexive competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation to processing, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application.

Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment.

A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

### **Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

### **Articulation possibilities**

This qualification will enable the qualifying candidate to progress to learning for other national certificates in food and beverages processing on NQF 3 since the exit level outcome maintain food safety, good manufacturing principles and quality control practices in a food manufacturing environment and unit standards on supply chain management, business principles and first line maintenance are core to all the national certificates in food and beverages processing on NQF 3.

This qualification provides entry to qualifications in food and beverage manufacturing supervision, food and beverage quality control and assurance, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

### **Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of

the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

#### **Criteria for registration of assessors**

For an applicant to register as an assessor, the applicant needs:

- Well developed interpersonal skills, subject matter and assessment experience.
- The assessor needs to be competent in the planning and conducting assessment of learning outcomes as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5. The subject matter experience must be well developed with in the field of oil refinery.
- A similar qualification with a minimum of 6 -12 months field experience after he/she has completed the qualification, or
- A food science or technology qualification on level 6 or higher.
- The subject matter experience of the assessor can be established by recognition of prior learning.
- Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.
- Detailed documentary proof of educational qualification, practical training undergone, and experience gained by the applicant must be provided (Portfolio of evidence)

## National Certificate in Food and Beverage Processing: Oil Refining NQF 3 140 credits

Fundamental	Level	Credits	Core	Level	Credits
<b>Field of Communication and Language</b>			Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment.	2	4
Accommodate audience and context needs in oral communication.	3	5	Demonstrate an understanding of heating and cooling procedures.	3	4
Interpret and use information from texts.	3	5	Remove impurities from oil using process equipment.	3	5
Write texts for a range of communicative context.	3	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.	3	7
Use language and communications in occupational learning programmes.	3	5	Monitor and control quality assurance practices in a food or beverage manufacturing environment.	3	4
<b>Field of Physical, Mathematical, Computer and Life Sciences</b>			Demonstrate an understanding of supply chain management	3	3
Produce and use spreadsheets for business.	3	5	Demonstrate understanding of introductory business principles.	3	4
Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways.	3	2	Apply first line maintenance on food or beverage processing equipment.	3	10
Use mathematics to investigate and monitor the financial aspects of personal, business and national issues.	3	2	Demonstrate knowledge on the nature of oils and fats and its transformation into oil and fat based products.	4	6
Work with a range of patterns of basic functions and solve related problems.	3	3	Store and route food materials and products.	4	8
Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts.	3	4	Convert edible oils into fats using process equipment.	4	15
Demonstrate knowledge of introductory principles of chemistry and physics.	2	4	Blend oils and food ingredients for processing.	4	8
Demonstrate knowledge of introductory biological principles.	2	4			
<b>Total</b>		<b>44</b>	<b>Total</b>		<b>78</b>

Electives Choose a minimum of 18 credits	Level	Credits
Clean and sanitise a food processing system using an automated cleaning-in-place-system	2	5
Bulk fill and close food or beverage products in containers.	2	5
Operate and control the filling and closing of glass or ridged plastic containers for food products.	2	10
Collate and shrink-wrap packed products using automated equipment.	2	4
Refine crude oils using continuous processing equipment	3	15
Refine crude oils using batch processing equipment	3	15
Monitor the temperature of food products and their environment for quality control purposes.	3	2
Freeze or chill a food product.	3	8
Determine the quality of food products using sensory evaluation.	4	10

## **UNIT STANDARDS IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGE PROCESSING: OIL REFINERY NQF 3**

### **UNIT STANDARDS ON NQF LEVEL 2**

- Title 1:** Bulk fill and close food or beverage products in containers.
- Title 2:** Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment (Registered Food SGB).
- Title 3:** Clean and sanitise a food processing system using an automated cleaning-in-place system (Registered Food SGB).
- Title 4:** Demonstrate knowledge of introductory biological principles. (Sourced from NSB 10)
- Title 5:** Operate and control the filling and closing of glass or ridged plastic containers for food products (Registered Dairy SGB).
- Title 6:** Collate and shrink-wrap packed products using automated equipment (Registered Dairy SGB).
- Title 7:** Demonstrate knowledge of introductory principles of chemistry and physics (To be registered Dairy SGB).

### **UNIT STANDARDS AT NQF LEVEL 3**

- Title 1:** Remove impurities from oil using process equipment.
- Title 2:** Refine crude oils using a batch processing equipment.
- Title 3:** Refine crude oils using a continuous processing equipment (Registered Food SGB)
- Title 4:** Monitor the temperature of food products and their environment for quality control purposes (Registered Food SGB).
- Title 5:** Freeze or chill a food product (Registered Food SGB)
- Title 6:** Demonstrate an understanding of heating and cooling procedures (Registered Food SGB).
- Title 7:** Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment (Registered Food SGB).
- Title 8:** Monitor and control quality assurance practices in a food or beverage manufacturing environment (Registered Food SGB).
- Title 9:** Apply continuous first line maintenance on food or beverage processing equipment (Sourced from NSB 6).
- Title 10:** Demonstrate understanding of supply chain management (Sourced from NSB 11).
- Title 11:** Demonstrate understanding of introductory business principles (Sourced from NSB 3).
- Title 12:** Accommodate audience and context needs in oral communication (Registered NSB 04).
- Title 13:** Interpret and use information from texts (Registered NSB 04).
- Title 14:** Write texts for a range of communicative context (Registered NSB 04).
- Title 15:** Use language and communications in an occupational learning programmes (Registered NSB 04).
- Title 16:** Produce and use spreadsheets for business (Registered NSB 10).

- Title 17:** Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways (Registered NSB 10).
- Title 18:** Use mathematics to investigate and monitor the financial aspects of personal, business and national issues (Registered NSB 10).
- Title 19:** Work with a range of patterns of basic functions and solve related problems (Registered NSB 10).
- Title 20:** Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts. (Registered NSB 10)

#### **UNIT STANDARDS AT NQF LEVEL 4**

- Title 1:** Blend oils and food ingredients for processing.
- Title 2:** Demonstrate knowledge on the nature of oils and fats and its transformation into oil and fat based products.
- Title 3:** Determine the quality of food products using sensory evaluation (Registered Food SGB).
- Title 4:** Store and route food materials and products (Registered Food SGB).
- Title 5:** Convert edible oils into fats using process equipment (Registered Food SGB).

#### **UNIT STANDARDS AND SPECIFIC OUTCOMES IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGE PROCESSING: OIL REFINERY NQF 3**

##### **UNIT STANDARDS ON NQF LEVEL 2**

##### **1. Title: Bulk fill and close food or beverage products in containers.**

- Specific outcome 1.1:** Demonstrate knowledge of bulk filling and closing of food or beverage products in containers.
- Specific outcome 1.2:** Prepare to bulk fill and close food or beverage products.
- Specific outcome 1.3:** Bulk fills and closes a food or beverage product.
- Specific outcome 1.4:** Perform end of filling and closing procedures

##### **UNIT STANDARDS ON NQF LEVEL 3**

##### **1. Title: Remove impurities from oil using process equipment.**

- Specific outcome 1.1:** Demonstrate an understanding of removing impurities from oils using process equipment.
- Specific outcome 1.2:** Prepare for removing impurities from oils using process equipment.
- Specific outcome 1.3:** Remove impurities from oils using process equipment.
- Specific outcome 1.4:** Perform end of impurity removal procedures.

##### **2. Title: Refine crude oils using a batch processing equipment.**

- Specific outcome 2.1:** Demonstrate an understanding of refining crude oils.
- Specific outcome 2.2:** Prepare for refining of crude oils.
- Specific outcome 2.3:** Refine and winterise crude oils.
- Specific outcome 2.4:** Perform end of refining procedures.

##### **UNIT STANDARDS ON NQF LEVEL 4**

##### **1. Title: Blend oils and food ingredients for processing.**

- Specific outcome 1.1:** Demonstrate an understanding of blending oils and food ingredients for processing.
- Specific outcome 1.2:** Prepare to blend oils and food ingredients
- Specific outcome 1.3:** Blend oils and food ingredients
- Specific outcome 1.4:** Perform end of blending procedures



**2. Title: Demonstrate knowledge on the nature of oils and fats and its transformation into oil and fat based products.**

- Specific outcome 2.1:** Demonstrate understanding of the transformation of natural fats and oils into commercial fats and oil based products.
- Specific outcome 2.2:** Demonstrate understanding of the physical-chemical nature of fats and oils
- Specific outcome 2.3:** Demonstrate understanding of the lipid chemical reactions used in oil and fat processing
- Specific outcome 2.4:** Demonstrate understanding of the physical properties of fats and oils.

No. 992

3 October 2001

**National Certificate in Food and Beverage Manufacturing Technology: Spray Dried Food Products Technologist NQF 4**

**Field:** Manufacturing, Engineering and Technology - NSB 06  
**Sub-field:** Manufacturing and Assembly  
**Level:** 4  
**Credit:** 140  
**Issue date:**  
**Review date:**

**Rationale of the qualification**

This qualification reflects the workplace-based needs of the food industry that are expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within the food industry and provides the flexibility to articulate in the food manufacturing environment with a wide variety of specialisation options and articulation within the food manufacturing industry.

The level of flexibility within the range of electives will allow the individual to pursue a career within specialised food manufacturing, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

**Purpose of the qualification**

A person acquiring this qualification will be able to manufacture safe, quality assured and packaged spray dried food products by operating, controlling and maintaining a spray dried food product manufacturing line, from raw materials until the final manufactured product is ready to be sold in the retail market.

**Access to the Qualification**

Open access.

**Learning assumed to be in place**

Knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 3.

**Exit level Outcomes**

Qualifying learners can:

Exit level 1: Brew and extract a beverage brew.

**Associated Assessment Criteria**

- A beverage brew is brewed and extracted according to standard operating procedures.

Exit level 2: Evaporate of a liquid food mixture.

**Associated Assessment Criteria**

- The importance of micro-organisms in the manufacturing of dried food products is understood and comprehended.
- Food raw materials are mixed and blended for processing according to standard operating procedures.
- Evaporate a liquid food mixture using a falling or rising film evaporator according to standard operating procedures.

Exit level 3: Manufacture instant food powder products.

**Associated Assessment Criteria**

- Evaporated or concentrated liquid food mixtures are spray dried and instantised using spray drying and instantising technology according to standard operating procedures.
- Instant powdered food products are sampled and analysed for compositional and sensory quality attributes, and an evaluation is made in terms of its conformance to legal and company standards.

Exit level 4: Pack dried food products

**Associated Assessment Criteria**

- Dry dairy products are packed and the packaging process line is operated and controlled according to standard operating procedures.
- The packaged products is collated and shrink-wrapped according to standard operating procedures and by using automated equipment.

**International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian, New Zealand and German qualifications. International comparability could be found for a qualification on this level. On the New Zealand Qualifications Authority Framework, two qualifications could be found to support this qualification.

**Integrated Assessment**

The applied competence (practical, foundational and reflective competencies) of this qualification will be able to manufacture safe, quality assured and packaged spray dried food products by operating, controlling and maintaining a spray dried food product manufacturing line, from raw materials until the final manufactured product is ready to be sold in the retail market.

The identification and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflective competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation to processing, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application.

Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment. A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

### **Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

### **Articulation possibilities**

This qualification will enable the qualifying learner to articulate to other dairy manufacturing specialisation domains at NQF level 4 and will allow progress to the national diploma in food and beverage manufacturing management at NQF level 6, the certificate in food and beverage manufacturing supervision at NQF level 4 and the certificate in food and beverage process artisan at NQF level 4.

### **Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

### **Criteria for registration of assessors**

Assessors need experience in the following areas:

Interpersonal skills, subject matter and assessment.

The assessor needs to be competent in the planning and conducting of assessment of learning outcomes and in the design and development of assessments as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5. Subject matter experience must be well developed within the field of spray dried food products manufacturing. The assessor must have completed a similar qualification with a minimum of 6-12 months field experience after he/she has completed the qualification or a food science and technology qualification on level 5 or higher. The subject matter experience of the assessor can be established by recognition of prior learning.

Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.

**National Certificate in Food and Beverage Manufacturing Technology: Spray Dried Food Technologist NQF 4 140 credits**

<b>Fundamental</b>		<b>L</b>	<b>Cr</b>	<b>Core</b>		<b>L</b>	<b>Cr</b>
<b>Field of Communication and Language</b>				Demonstrate an understanding of food or beverage safety practices and procedures in a food manufacturing environment.		3	7
Engage in sustained oral communication and evaluate spoken texts.		4	5	Determine the quality of food products using sensory evaluation.		4	4
Read, analyse and respond to a variety of texts.		4	5	Demonstrate an understanding of the relationship between micro-organisms and food spoilage.		4	8
Write for a wide range of contexts.		4	5	Evaporate a liquid food product using a falling or rising film evaporator.		4	20
Use language and communication in occupational learning programmes.		4	5	Manufacture an instant food product by means of a spray drier.		4	30
<b>Field of Physical, Mathematical, Computer and Life Sciences</b>							
Apply knowledge of sequences and series to interpret and solve problems in real and simulated situations		4	2				
Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues		4	2				
Work with a wide range of patterns and transformations of functions and solve related problems		4	3				
Construct, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts		4	4				
Apply knowledge of statistics and probability to evaluate and communicate findings on life-related problems		4	5				
Total available credits			36	Total available credits			69

<b>Electives Choose a minimum of 35 credits</b>			<b>L</b>	<b>Cr</b>
Bulk pack dry food products in bags.			1	2
Mix or blend food raw materials for processing using automated equipment.			2	4
Operate and control the filling and seaming of cans for food or beverage products.			2	12
Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food or beverage products.			2	10
Collate and shrink-wrap packaged products using automated wrapping equipment.			2	4
Apply first line maintenance on food or beverage processing equipment.			3	10
Roast beans or nuts.			3	8
Brew and extract a beverage brew.			4	10
Implement and maintain food or beverage production quality assurance system.			4	8
Demonstrate knowledge of financial principles.			4	7
Demonstrate knowledge of industrial relationship principles and legislation.			4	4
Implement and maintain a food or beverage production plans.			5	4



**UNIT STANDARDS IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGE MANUFACTURING TECHNOLOGY: SPRAY DRIED FOOD PRODUCTS TECHNOLOGIST NQF 4****UNIT STANDARDS ON NQF LEVEL 1**

**Title 1:** Bulk pack dry food products in bags (Registered, Dairy SGB).

**UNIT STANDARDS ON NQF LEVEL 2**

**Title 1:** Mix or blend food raw materials for processing using automated equipment (Registered Food SGB).

**Title 2:** Operate and control the filling and seaming of cans for food or beverage products (Registered Dairy SGB).

**Title 3:** Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food or beverage products (Registered Dairy SGB).

**Title 4:** Collate and shrink-wrap packaged products using automated wrapping equipment (Registered Dairy SGB).

**UNIT STANDARDS ON NQF LEVEL 3**

**Title 1:** Roast beans or nuts.

**Title 2:** Demonstrate an understanding of food safety practices and procedures in a food manufacturing environment (Registered, Food SGB).

**Title 3:** Apply first line maintenance on food or beverage processing equipment (To be sourced from NSB 06).

**UNIT STANDARDS AT NQF LEVEL 4**

**Title 1:** Brew and extract a brew.

**Title 2:** Implement and maintain a food or beverage production quality assurance system.

**Title 3:** Demonstrate an understanding of the relationship between micro-organisms and food spoilage (Registered Food SGB)

**Title 4:** Evaporate a liquid food product using a falling or rising film evaporator (Registered, Dairy SGB).

**Title 5:** Evaluate the quality of food products using sensory evaluation (Registered, Food SGB).

**Title 6:** Manufacture instant food powdered product by means of a spray dryer (Registered, Dairy SGB).

**Title 7:** Demonstrate knowledge of financial principles (To be sourced from NSB 03).

**Title 8:** Demonstrate knowledge of industrial relationship principles and legislation (To be sourced from NSB 08).

**Title 9:** Engage in sustained oral communication and evaluate spoken texts (Registered, NSB 04).

**Title 10:** Read, analyse and respond to a variety of texts (Registered, NSB 04).

**Title 11:** Write for a wide range of contexts (Registered, NSB 04).

- Title 12:** Use language and communication in occupational learning programmes (Registered, NSB 04).
- Title 13:** Apply knowledge of sequences and series to interpret and solve problems in real and simulated situations (Registered, NSB 10).
- Title 14:** Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues (Registered, NSB 10).
- Title 15:** Work with a wide range of patterns and transformations of functions and solve related problems (Registered, NSB 10).
- Title 16:** Construct, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts (Registered, NSB 10).
- Title 17:** Apply knowledge of statistics and probability to evaluate and communicate findings on life-related problems (Registered, NSB 10).

#### **UNIT STANDARDS AT NQF LEVEL 5**

- Title 1:** Implement and maintain a food or beverage production plans.

#### **UNIT STANDARDS AND SPECIFIC OUTCOMES IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGE MANUFACTURING TECHNOLOGY: SPRAY DRIED FOOD PRODUCTS TECHNOLOGIST NQF 4**

##### **UNIT STANDARDS ON NQF LEVEL 4**

###### **1. Title: Brew and extract a beverage brew**

**Specific outcome 1.1:** Demonstrate an understanding of extracting.

**Specific outcome 1.2:** Prepare for extraction.

**Specific outcome 1.3:** Extract a beverage brew.

**Specific outcome 1.4:** Perform end of extraction procedures.

###### **2. Title: Implement and maintain a food or beverage production quality assurance system.**

**Specific outcome 2.1:** Demonstrate an understanding of a food or beverage production quality control system.

**Specific outcome 2.2:** Implement a food or beverage production quality control system.

**Specific outcome 2.3:** Maintain a food or beverage production quality control system.

##### **UNIT STANDARDS ON NQF LEVEL 5**

###### **1. Title: Implement and maintain food or beverage production plans**

**Specific outcome 1.1:** Demonstrate an understanding of food or beverage production plans.

**Specific outcome 1.2:** Prepare a food or beverage production plan.

**Specific outcome 1.3:** Implement a food or beverage production plan.

**Specific outcome 1.4:** Review and maintain a food or beverages production plan.

No. 993

3 October 2001

**National Certificate in Food and Beverage Processing: Oil Milling NQF 3**

**Field:** Manufacturing, Engineering and Technology - NSB 06  
**Sub-field:** Manufacturing and Assembly  
**Level:** 3  
**Credit:** 140  
**Issue date:**  
**Review date:**

**Rationale of the qualification**

This qualification reflects the workplace-based needs of the edible oil milling industry that are expressed by employers and employees, both now and for the future. This qualification provides the learner with accessibility to be employed within the food-oil and -fat manufacturing industry. The qualification further provides the flexibility to articulate in the oil refinery and the manufacturing of fat and oil based products and packaging environment.

The qualification and the level of flexibility within the range of electives will allow the individual to pursue a specialised career in a oil milling related environment, food and beverage packaging, food and beverage quality control and assurance, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

**Purpose of the qualification**

A person acquiring this qualification will be able to manufacture a safe, quality extracted and filtered oil by operating, controlling and maintaining an oil mill, from the handling and preparation of raw materials until the oil is milled and ready for further processing.

This qualification will contribute to the full development of the learner with in the food and beverages processing environment by providing recognition, further mobility and transportability within the field of manufacturing and assembly. The skills, knowledge and understanding demonstrated within this qualification are essential for social and economic transformation and contribute to the upliftment and economic growth within the food and beverage manufacturing and processing environment.

**Access to the Qualification**

Open access

**Learning assumed to be in place**

A knowledge, comprehension and application of language, mathematics, natural science and technology principles at NQF level 1 and 2.

**Exit level Outcomes**

Qualifying learners can:

Exit level 1: Prepare and grade food raw materials for conditioning of oil plant seeds.

**Associated Assessment Criteria**

- Apply knowledge and comprehension regarding the nature of oils and fats and its transformation into oil and fat based products.
- Oil plant seeds and other process related food raw materials are received, graded and stored according to standard operating procedures.
- Oil plant seeds and other process related food raw materials are prepared for the conditioning according to standard operating procedures.

Exit level 2: Manufacture filtered oil from an edible food grade oil plant seed

**Associated Assessment Criteria**

- Oil from oil plant seeds are conditioned and extracted using a continuous production operation according to standard operating procedures.
- Conditioned oil are extracted, degummed and filtered using a solvent extracting method.
- The compositional quality of the filtered oil is verified according to standard operating procedures.

Exit level 3: Bulk packaging of filtered oil

**Associated Assessment Criteria**

- Bulk containers for filtered oil products are filled and sealed according to standard operating procedures.  
Perform 1 product and 1 packaging material changeovers.
- Quality control checks are done on closed products according to standard operating procedures.
- Where filling and closing takes place simultaneously with other production processes, it is synchronized according to standard operating procedures.

Exit level 4: Maintain food safety, good manufacturing principles and quality assurance practices in oil milling manufacturing environment.

**Associated Assessment Criteria**

- Apply knowledge and comprehension of occupational health, safety and environmental legislation relevant to the oil milling industry according to standard operating procedures.
- Apply knowledge and comprehension of food safety practices and procedures in oil milling according to standard operating procedures.
- Apply knowledge and comprehension of heating and cooling procedures used in a oil milling environment.
- The temperature of raw materials, final products and their environment is monitored and controlled for quality control purposes.
- Oil milling quality assurance practices are monitored and controlled according to standard operating procedures.
- Food manufacturing equipment and surfaces are cleaned and sanitised according to standard operating procedures.

**International comparability**

Benchmarking was done against the NVQ from Britain, SVQ from Scotland as well as Australian and New Zealand qualifications. International comparability could be found for a qualification on this level. On the

New Zealand Qualifications Authority Framework a National Certificate in Food and related processing level 3 could be found to support this qualification.

### **Integrated Assessment**

The applied competence (practical, foundational and reflexive competencies) of this qualification will be achieved if a candidate is able to manufacture a safe, quality extracted and filtered oil by operating, controlling and maintaining an oil mill, from the handling and preparation of raw materials until the oil is milled and ready for further processing.

The identifying and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflexive competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

The preparation to processing, cleaning and sanitising, first line maintenance and quality assurance related to processing in the workplace can be assessed in one application.

Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the processing environment.

A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

### **Recognition of prior learning**

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

### **Articulation possibilities**

This qualification will enable the qualifying candidate to progress to learning for other national certificates in food and beverages processing on NQF 3 since the exit level outcome maintain food safety, good manufacturing principles and quality control practices in a food manufacturing environment and unit standards on supply chain management, business principles and first line maintenance are core to all the national certificates in food and beverages processing on NQF 3.

This qualification provides entry to qualifications in food and beverage manufacturing supervision, food and beverage quality control and assurance, food and beverage manufacturing management, food and beverage manufacturing supervision and food and beverage process artisan.

### **Moderation Options**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around



assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.

- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

#### **Criteria for registration of assessors**

For an applicant to register as an assessor, the applicant needs:

- Well developed interpersonal skills, subject matter and assessment experience.
- The assessor needs to be competent in the planning and conducting assessment of learning outcomes as described in the unit standards Plan and conduct assessment of learning outcomes NQF level 5. The subject matter experience must be well developed with in the field of oil milling.
- A similar qualification with a minimum of 6 -12 months field experience after he/she has completed the qualification, or
- A food science or technology qualification on level 6 or higher.
- The subject matter experience of the assessor can be established by recognition of prior learning.
- Assessors need to be registered with the Food and Beverage Education and Training Quality Assurance Body.
- Detailed documentary proof of educational qualification, practical training undergone, and experience gained by the applicant must be provided (Portfolio of evidence)

National Certificate in Food and Beverage Processing: Oil Milling NQF 3 140 credits					
Fundamental	L	Cr	Core	L	Cr
<b>Field of Communication and Language</b>			Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment.	2	4
Accommodate audience and context needs in oral communication.	3	5	Demonstrate an understanding of heating and cooling procedures.	3	4
Interpret and use information from texts.	3	5	Condition and express oil from oil plant seeds.	3	15
Write texts for a range of communicative context.	3	5	Extract and filter oils using a solvent extraction.	3	20
Use language and communications in occupational learning programmes.	3	5	Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment.	3	7
<b>Field of Physical, Mathematical, Computer and Life Sciences</b>			Monitor and control quality assurance practices in a food or beverage manufacturing environment.	3	4
Produce and use spreadsheets for business.	3	5	Demonstrate an understanding of supply chain management.	3	3
Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways.	3	2	Demonstrate understanding of introductory business principles.	3	4
Use mathematics to investigate and monitor the financial aspects of personal, business and national issues.	3	2	Apply first line maintenance on food or beverage processing equipment.	3	10
Work with a range of patterns of basic functions and solve related problems.	3	3	Demonstrate knowledge on the nature of oils and fats and its transformation into oil and fat based products.	4	8
Describe, apply, analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts.	3	4	Store and route food materials and products.	4	8
Demonstrate knowledge of introductory principles of chemistry and physics.	2	4			
Demonstrate knowledge of introductory biological principles.	2	4			
<b>Total</b>		<b>44</b>	<b>Total</b>		<b>87</b>

<b>Electives Choose a minimum of 9 credits</b>	<b>L</b>	<b>Cr</b>
Clean and sanitise a food processing system using an automated cleaning-in-place-system.	2	5
Bulk fill and close food or beverage products in containers.	2	5
Mix or blend food raw materials for processing using automated equipment.	2	4
Toast a food product in an oven-toaster.	3	8
Receive food raw materials.	3	8
Grade and sort food raw materials.	3	6
Monitor the temperature of food products and their environment for quality control purposes.	3	2
Fumigate food raw materials before further processing.	3	8
Determine the quality of food products using sensory evaluation.	4	10
Dry mill a food product.	3	8

**UNIT STANDARDS IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGE PROCESSING: OIL MILLING NQF 3****UNIT STANDARDS ON NQF LEVEL 2**

- Title 1:** Bulk fill and close food or beverage products in containers.
- Title 2:** Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment (Registered Food SGB).
- Title 3:** Clean and sanitise a food processing system using an automated cleaning-in-place system (Registered Food SGB).
- Title 4:** Demonstrate knowledge of introductory biological principles. (Sourced from NSB 10)
- Title 5:** Mix or blend food raw materials for processing using automated equipment (Registered Food SGB).
- Title 6:** Demonstrate knowledge of introductory principles of chemistry and physics (To be registered Dairy SGB).

**UNIT STANDARDS AT NQF LEVEL 3**

- Title 1:** Toast a food product in an oven-toaster.
- Title 2:** Receive food raw materials (Registered Food SGB).
- Title 3:** Grade and sort food raw materials (Registered Food SGB).
- Title 4:** Monitor the temperature of food products and their environment for quality control purposes (Registered Food SGB).
- Title 5:** Fumigate food raw materials before further processing (Registered Food SGB).
- Title 6:** Dry mill a food product (Registered Food SGB).
- Title 7:** Demonstrate an understanding of heating and cooling procedures (Registered Food SGB).
- Title 8:** Demonstrate an understanding of food or beverage safety practices and procedures in a food or beverage manufacturing environment (Registered Food SGB).
- Title 9:** Monitor and control quality assurance practices in a food or beverage manufacturing environment (Registered Food SGB).
- Title 10:** Condition and express oil from oil plant seeds (Registered Food SGB).
- Title 11:** Extract and filter oils using a solvent extraction (Registered Food SGB).
- Title 12:** Apply continuous first line maintenance on processing equipment (Sourced from NSB 6).
- Title 13:** Demonstrate understanding of supply chain management (Sourced from NSB 11).
- Title 14:** Demonstrate understanding of introductory business principles (Sourced from NSB 3).
- Title 15:** Accommodate audience and context needs in oral communication (Registered NSB 04).
- Title 16:** Interpret and use information from texts (Registered NSB 04).
- Title 17:** Write texts for a range of communicative context (Registered NSB 04).
- Title 18:** Use language and communications in an occupational learning programmes (Registered NSB 04).

- Title 19:** Produce and use spreadsheets for business (Registered NSB 10).
- Title 20:** Demonstrate understanding of numbers and relationships among numbers and number systems, and represent numbers in different ways (Registered NSB 10).
- Title 21:** Use mathematics to investigate and monitor the financial aspects of personal, business and national issues (Registered NSB 10).
- Title 22:** Work with a range of patterns of basic functions and solve related problems (Registered NSB 10).
- Title 23:** Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts. (Registered NSB 10)

#### **UNIT STANDARDS AT NQF LEVEL 4**

- Title 1:** Demonstrate knowledge on the nature of oils and fats and its transformation into oil and fat based products.
- Title 2:** Determine the quality of food products using sensory evaluation (Registered Food SGB).
- Title 3:** Store and route food materials and products (Registered Food SGB).

#### **UNIT STANDARDS AND SPECIFIC OUTCOMES IN NATIONAL CERTIFICATE IN FOOD AND BEVERAGE PROCESSING: OIL MILLING NQF 3**

##### **UNIT STANDARDS ON NQF LEVEL 2**

##### **1. Title: Bulk fill and close food or beverage products in containers.**

- Specific outcome 1.1:** Demonstrate knowledge of bulk filling and closing of food or beverage products in containers.
- Specific outcome 1.2:** Prepare to bulk fill and close food or beverage products.
- Specific outcome 1.3:** Bulk fills and closes a food or beverage product.
- Specific outcome 1.4:** Perform end of filling and closing procedures

##### **UNIT STANDARDS ON NQF LEVEL 3**

##### **1. Title: Toast a food product in an oven-toaster.**

- Specific outcome 1.1:** Demonstrate an understanding of toasting processes.
- Specific outcome 1.2:** Prepare for toasting of a food product.
- Specific outcome 1.3:** Toast food products.
- Specific outcome 1.4:** Perform end of toasting procedures.

##### **UNIT STANDARDS ON NQF LEVEL 4**

##### **1. Title: Demonstrate knowledge on the nature of oils and fats and its transformation into oil and fat based products.**

- Specific outcome 1.1:** Demonstrate understanding of the transformation of natural fats and oils into commercial fats and oil based products.
- Specific outcome 1.2:** Demonstrate understanding of the physical-chemical nature of fats and oils
- Specific outcome 1.3:** Demonstrate understanding of the lipid chemical reactions used in oil and fat processing
- Specific outcome 1.4:** Demonstrate understanding of the physical properties of fats and oils.

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3 October 2001

**UNIT STANDARDS DEVELOPED BY THE FOOD MANUFACTURING SGB****FIELD : MANUFACTURING, ENGINEERING AND TECHNOLOGY****SUB-FIELD : MANUFACTURING AND ASSEMBLY****NQF LEVEL : 1 - 6****UNIT STANDARDS AT NQF LEVEL 1****Title 1: Control and maintain packaging line hoppers.****UNIT STANDARDS AT NQF LEVEL 2****Title 1: Operate and control the tamperproof sealing of already filled and closed containers.****UNIT STANDARDS AT NQF LEVEL 4****Title 1: Maintain a food safety programme.****UNIT STANDARDS AT NQF LEVEL 5****Title 1: Verify a supplier quality assurance system in a food manufacturing environment.****Title 2: Manage operations in a food or beverage laboratory.****UNIT STANDARDS AT NQF LEVEL 6****Title 1: Provide nutritional information on food or beverage products.****Title 2: Provide technical information on food or beverage products and processing procedures.****Title 3: Develop a new food product and standards.****Title 4: Develop a processing recipe for a food product.****Title 5: Update and publish specifications for food or beverage products.**



**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 1**

1. **TITLE:** **Control and maintain packaging line hoppers.**
- Specific outcome 1.1: Demonstrate an understanding of controlling and maintaining packaging line hoppers.
- Specific outcome 1.2: Prepare to control and maintain packaging line hoppers.
- Specific outcome 1.3: Control and maintain packaging line hoppers.
- Specific outcome 1.4: Perform end of controlling and maintaining procedures.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2**

1. **TITLE:** **Operate and control the tamperproof sealing of already filled and closed containers.**
- Specific outcome 1.1: Demonstrate an understanding of tamperproof sealing procedures.
- Specific outcome 1.2: Prepare to tamperproof filled and closed containers.
- Specific outcome 1.3: Tamperproof filled and closed containers.
- Specific outcome 1.4: Perform end of tamperproofing procedures.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4**

1. **TITLE:** **Maintain a food safety programme.**
- Specific outcome 1.1: Demonstrate an understanding of a food safety programme.
- Specific outcome 1.2: Implement a food safety programme.
- Specific outcome 1.3: Maintain a food safety programme.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 5**

1. **TITLE:** **Verify a supplier quality assurance system in a food manufacturing environment.**
- Specific outcome 1.1: Demonstrate an understanding of a supplier quality assurance system in a food manufacturing environment.
- Specific outcome 1.2: Evaluate a supplier quality assurance system.
- Specific outcome 1.3: Monitor the supplier quality assurance system.

Specific outcome 1.4: Report on the audit finding of a supplier quality assurance system.

**2. TITLE: Manage operations in a food or beverage laboratory.**

Specific outcome 2.1: Manage laboratory operations.

Specific outcome 2.2: Maintain operation of laboratory equipment.

Specific outcome 2.3: Report on laboratory operations.

Specific outcome 2.4: Liase with internal and external customers.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 6**

**1. TITLE: Provide nutritional information on food or beverage products.**

Specific outcome 1.1: Research and gather information on food and beverage products.

Specific outcome 1.2: Maintain nutritional information on food and beverage product composition.

Specific outcome 1.3: Provide nutritional information and advice of food or beverage products.

**2. TITLE: Provide technical information on food or beverage products and processing procedures.**

Specific outcome 2.1: Research and gather information on food and beverage products.

Specific outcome 2.2: Maintain technical information on food and beverage product composition, manufacturing procedures and technological improvements.

Specific outcome 2.3: Provide technical information and advice of food or beverage products or processing procedures.

**3. TITLE: Develop A New Food Product And Standards.**

Specific outcome 3.1: Demonstrate knowledge of food product development.

Specific outcome 3.2: Prepare for a food product development.

Specific outcome 3.3: Develop a new food product.

Specific outcome 3.4: Report on a new product development.

**4. TITLE: Develop a processing recipe for a food product.**

Specific outcome 4.1: Demonstrate knowledge of processing recipe development.

Specific outcome 4.2: Prepare for developing a processing recipe.

Specific outcome 4.3: Develop a processing recipe for a food product.

Specific outcome 4.4: Perform end-of recipe development procedures.

**5. TITLE: Update and publish specifications for food or beverage products.**

Specific outcome 5.1: Research and gather information on food or beverage specifications.

Specific outcome 5.2: Collate food or beverage specifications.

Specific outcome 5.3: Publish and maintain food or beverage specifications.

No. 995

3 October 2001

**PUBLIC NOTICE BY NSB 06, MANUFACTURING, ENGINEERING AND  
TECHNOLOGY TO EXTEND THE BRIEF OF THE FOOTWEAR SGB FROM NQF  
LEVELS 1 - 5**

National Standards Body (NSB 06) – Manufacturing, Engineering and Technology wishes to extend the brief of the Footwear SGB in the sub-field of Manufacturing and Assembly from NQF levels 1 – 5.

**EXTENSION OF THE BRIEF**

1. Develop learning pathways for potential qualifications and unit standards in the sub-field of Manufacturing and Assembly from Level 1 through to level 5 in Footwear and Leather processes and Technology [Regulation 24(1)(e)].
2. Generate the following qualifications in accordance with Authority requirements:
  - National Certificate in Footwear Processes (NQF level 2)
  - National Certificate in Footwear Technology (NQF level 4)
  - National Diploma in Footwear Technology (NQF level 5)
  - National Certificate in Leather Processes (NQF level 2)
  - National Higher Certificate in Leather Processing (NQF level 4)
  - National Diploma in Leather Technology (NQF level 5)[Regulation 24(1)(a)].
3. Recommend the standards and qualifications generated under 2, above to the National Standards Body [Regulation 24(1)(c)].
4. Recommend criteria for the registration of assessors and moderators or moderating bodies [Regulation 24(1)(d)].
5. Review these qualifications and unit standards and effect the necessary changes [Regulation 24(1)(b)].
6. Maintain liaison with other related Standards Generating Bodies in the field [Regulation 24(1)(e)].
7. Perform such functions as may from time to time be delegated by the NSB.

**COMPOSITION OF THE SGB**

<b>NOMINEE</b>	<b>Workplace</b>	<b>Nominating Body</b>	<b>Experience/ Qualifications</b>
Amery T	Footwear Institute of South Africa	Footwear Institute of South Africa	5 years EO OF Footwear Institute of South Africa.
Bansi P	Caprini Footwear (Palm Group)	Caprini Footwear (Palm Group)	30 years Experience in Footwear Industry
Chunder R	Andreoli Shoes	NULAW	15 years experience in Footwear Industry
Clarke WJG	South African Bureau of Standards (SABS)	Critical Interest Group	55 years experience in Footwear Industry
Deepnarin J	Richleigh Shoes (Conshu)	Richleigh Shoes	21 years experience in Footwear Industry including 10 years in Training and Human Resource
Dumas B	Watson Shoes (Bolwear)	Watson Shoes	20 years experience in Footwear Industry
Lubbe A	AP Lubbe & Sons	AP Lubbe and Sons	B. Economics 30 years experience in Footwear Industry
Matsopaulos B	Matsons	Matsons	50 years experience in Footwear Industry
Memela B	Dick Whittington Shoes	South African Clothing and Textile Workers Union (SACTAWU)	13 years Experience in Footwear Industry
Miya M	Richleigh Shoes	South African Clothing and Textile Workers Union)	10 years experience in Footwear Industry
Munsamy R	Bambi Shoes	NULAW	18 years experience in Footwear Industry
Oosthuizen R	Watson Shoes	Watson Shoes	B. Administration (Industrial Psychology 10 years in Footwear Industry
Proctor B	Crown Footwear	Crown Footwear	Graduate – British Boot and Shoe Institute. 33 years in Footwear Industry



Rabe E	Technisa	Technisa	B.A English and History Higher Education Diploma Training and Development: City and Guilds Deputy Principal: Operations
Wood A	Clothing, Textiles, Footwear and Leather SETA (CTFL)	Clothing, Footwear and Leather SETA (CTFL)	National Teacher's Diploma National Technology Diploma 10 years Experience in Footwear Industry Chamber Manager CTFL
Ritz T	CETON SA	Society of Leather Technologists and Chemists	Diploma in Leather Science Leather Generalist 30 years in the Leather Industry
Henry J	CETON SA	CETON SA	B Degree Industrial Psychology and Sociology Diploma in Training Management and Labour Relations 15 years in the Leather Industry
Jackson – Moss Dr	International School of Tanning Technology	Society of Leather Technologists and Chemists	B.Sc. Honours in Leather Sciences Ph.D. Leather Sciences. 18 years Teaching Experience in the Leather Industry
Boast D	African Hide Trading Corporation	African Hide Trading Corporation	34 years Experience in the Leather Industry
Yzelle J	South Cape Ostrich Tannery	Clothing, Textiles, Footwear and Leather SETA	B.Sc. Chemistry and Mathematics N3 Leather Manufacturing 34 years in the Leather Industry

Els M	Technikon Witwatersrand	South African Podiatry Association	Diploma in Podiatry B. Sc. Podiatric Studies NHD: Podiatry Lecturer : School of Health: Wits
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