

NOTICE 834 OF 2001

SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)

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

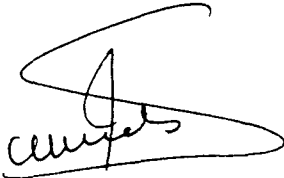
DAIRY

Registered by NSB 06, Manufacturing, Engineering and Technology, publishes the following unit standards-based qualifications 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 qualifications are based. The full qualifications and unit standards can be accessed via the SAQA web-site at www.saqaco.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 and no later than 12 May 2001***. All correspondence should be marked **Standards Setting – SGB for Higher Education and Training** and addressed to

The Director: Standard Setting and Development
SAQA
Attention: Mrs S. Vasuthevan
Postnet Suite 248
Private Bag X06
Waterkloof
0145
or faxed to 012 – 346 5812



SAMUEL B.A. ISAACS
EXECUTIVE OFFICER

**NATIONAL CERTIFICATE IN FOOD AND BEVERAGE PROCESSING: RAW MILK OR
CREAM RECEIVING AND STORING**

Field:	Manufacturing, Engineering and Technology
Sub-Field:	Manufacturing and Assembly
NQF Level:	2
Credits:	123
Purpose of the Qualification :	<p>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 or chocolate confectionery or frozen dairy ice cream products.</p> <p>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.</p>

QUALIFICATION TITLE MATRIX

		Credits
Fundamental		
Level 2	<ul style="list-style-type: none">• Language• Mathematics	20
		16
Core		
Level 1	<ul style="list-style-type: none">• Apply personal safety practices in a food manufacturing environment.• Maintain personal hygiene, health and presentation in a food environment.	4
		3
Level 2	<ul style="list-style-type: none">• Clean and sanitise a food processing system using an automated cleaning in-place system.• Demonstrate knowledge of introductory principles of chemistry and physics.• Apply knowledge of the effect of micro-organisms on personal health, hygiene and food safety.	5
		4
		4
Level 3	<ul style="list-style-type: none">• Demonstrate an understanding of supply chain management	4
		Total 24
Compulsory Electives		
Level 1	<ul style="list-style-type: none">• Demonstrate knowledge of dairy terminology, equipment and systems.• Measure the temperature of food products and evaluate the readings.• Clean and sanitise food manufacturing equipment and surfaces manually.• Take a representative food sample.	4
		1
		3
		3
Level 2	<ul style="list-style-type: none">• Demonstrate knowledge of heating and cooling media in a food manufacturing environment.• Receive and store raw milk or cream in a silo at a milk reception facility.• Demonstrate knowledge of the nature of milk and its transformation into commercial dairy products.• Demonstrate knowledge of the effect of micro-organisms on the quality of raw milk during raw milk handling	3
		8
		5
		3
		Total 30

Choice Electives (Choose a minimum of 33 credits)		
Level 2	• Evaluate the acceptability of raw milk on the farm for bulk milk collection.	3
	• Evaluate the quality of milk in terms of its protein stability as indicated by the alisarol test.	3
	• Evaluate the quality of milk or a dairy product in terms of its titratable acidity.	3
	• Evaluate the quality of raw milk in terms of its antibiotics content.	3
	• Pre-batch food related raw materials (To be submitted by the Food SGB).	4
	• Mix or blend food raw materials for processing using automated equipment (To be submitted by the Food SGB).	4
	• Determine the volume of bulk milk by means of a weigh bridge.	4
	• Maintain food laboratory safety.	4
	• Collate and shrink-wrap packaged products using automated wrapping equipment.	4
	• Use a personal computer operating system (Registered).	3
	• Operate a personal computer system (Registered).	3
		6
	• Evaluate the quality of milk in terms of its freezing point.	
	• Evaluate the quality of raw milk in terms of its microbial load, as indicated by the resazurin test.	
Level 3	• Evaluate the quality of a dairy product in terms of its fat content, as indicated by the Gerber fat determination method.	4
	• Evaluate the quality of a food product in terms of its pH.	4
	• Evaluate the quality of cream in terms of its fat content, as indicated by the Babcock fat determination method.	4
	• Evaluate the quality of milk in terms of its solids-not-fat content.	4
	• Evaluate the composition of raw milk as determined by an infra-red analyser.	4
		3
		6
Total 33		
GRAND TOTAL		123

UNIT STANDARDS ON NQF LEVEL 1

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

UNIT STANDARDS ON NQF LEVEL 2

- Title 1: Demonstrate knowledge of heating and cooling media in a food manufacturing environment.
- Title 2: Maintain food laboratory safety.
- Title 3: Receive and store raw milk or cream in a silo at a milk reception facility.
- Title 4: Evaluate the quality of milk in terms of its protein stability, as indicated by the alisarol test.
- Title 5: Evaluate the quality of milk or a dairy product in terms of its titratable acidity.
- Title 6: Clean and sanitise a food processing system using an automated cleaning-in-place system.
- Title 7: Demonstrate knowledge of the nature of milk and its transformation into commercial dairy products.
- Title 8: Demonstrate knowledge of introductory principles of chemistry and physics.
- Title 9: Determine the volume of bulk milk by means of a weigh bridge.
- Title 10: Evaluate the quality of raw milk in terms of its antibiotics content.
- Title 11: Apply knowledge of the effect of micro-organisms on personal health, hygiene and food safety.
- Title 12: Demonstrate knowledge of the effect of micro-organisms on the quality of raw milk during raw milk handling.
- Title 13: Collate and shrink-wrap packaged products using automated wrapping equipment.
- Title 14: Evaluate the acceptability of raw milk on the farm for bulk milk collection.
- Title 15: Use a personal computer operating system (Registered).

- Title 16: Operate a personal computer system (Registered).
- Title 17: Pre-batch food related raw materials (To be submitted by the Food SGB).
- Title 18: Mix or blend food raw materials for processing using automated equipment (To be submitted by the Food SGB).
- Title 19: Language unit standards (Interim registered unit standards).
- Title 20: Mathematics unit standards (Interim registered unit standards).

UNIT STANDARDS ON NQF LEVEL 3

- Title 1: Evaluate the quality of a food product in terms of its pH.
- Title 2: Evaluate the quality of raw milk in terms of its microbial load, as indicated by the resazurin test.
- Title 3: Evaluate the quality of a dairy product in terms of its fat content, as indicated by the Gerber fat determination method.
- Title 4: Evaluate the quality of milk in terms of its solids-non-fat content.
- Title 5: Evaluate the quality of milk in terms of its freezing point.
- Title 6: Evaluate the composition of raw milk as determined by an infra red analyser.
- Title 7: Evaluate the quality of cream in terms of its fat content, as indicated by the Babcock fat determination method.
- Title 8: Demonstrate an understanding of supply chain management

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 1

- 1. TITLE: DEMONSTRATE KNOWLEDGE OF DAIRY TERMINOLOGY, EQUIPMENT AND SYSTEMS.**
- Specific outcome 1.1: Demonstrate knowledge of dairy equipment used in the dairy industry.
- Specific outcome 1.2: Demonstrate knowledge of dairy terminology used in the dairy industry.
- Specific outcome 1.3: Demonstrate knowledge of dairy supporting functions and equipment used in the dairy industry.
- Specific outcome 1.4: Demonstrate knowledge of dairy processing systems.

- 2. TITLE: APPLY PERSONAL SAFETY PRACTICES IN A FOOD MANUFACTURING ENVIRONMENT.**
- Specific outcome 2.1: Demonstrate knowledge of personal safety in a food manufacturing environment.
- Specific outcome 2.2: Apply personal safe working practices in a food manufacturing environment.
- Specific outcome 2.3: Deal with safety emergencies.
- Specific outcome 2.4: Handle and store raw materials or final products or chemicals in a food manufacturing environment.
- 3. TITLE: MEASURE THE TEMPERATURE OF FOOD PRODUCTS AND EVALUATE THE READINGS.**
- Specific outcome 3.1: Demonstrate knowledge of temperature determination of food products.
- Specific outcome 3.2: Prepare for temperature determination.
- Specific outcome 3.3: Determine temperature(s).
- Specific outcome 3.4: Report on temperature determinations.
- 4. TITLE: TAKE A REPRESENTATIVE FOOD SAMPLE.**
- Specific outcome 4.1: Demonstrate knowledge of representative sampling.
- Specific outcome 4.2: Prepare for sampling.
- Specific outcome 4.3: Take a representative sample.
- Specific outcome 4.4: Maintain records of sampling.
- 5. TITLE: CLEAN AND SANITISE FOOD MANUFACTURING EQUIPMENT AND SURFACES MANUALLY.**
- Specific outcome 5.1: Demonstrate knowledge of the manual cleaning and sanitising procedures for food manufacturing equipment and surfaces.
- Specific outcome 5.2: Prepare to clean and sanitise food manufacturing equipment and surfaces manually.
- Specific outcome 5.3: Clean and sanitise food manufacturing equipment and surfaces manually.
- Specific outcome 5.4: Perform end of process duties.

- 6. TITLE: MAINTAIN PERSONAL HYGIENE, HEALTH AND PRESENTATION IN A FOOD ENVIRONMENT**
- Specific outcome 6.1: Maintain personal hygiene.
- Specific outcome 6.2: Maintain personal health and well-being.
- Specific outcome 6.3: Maintain personal grooming and presentation.
- Specific outcome 6.4: Maintain clothing requirements in a food environment.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2

- 1. TITLE: DEMONSTRATE KNOWLEDGE OF HEATING AND COOLING MEDIA IN A FOOD MANUFACTURING ENVIRONMENT.**
- Specific outcome 1.1: Demonstrate knowledge of the concept of energy.
- Specific outcome 1.2: Explain the generation and application of steam as a heating medium.
- Specific outcome 1.3: Explain the application of water and gasses as cooling media.
- Specific outcome 1.4: Explain the generation and application of electricity as an energy source for heating and cooling purposes.
- Specific outcome 1.5: Demonstrate knowledge of the safe handling of heating and cooling media.
- 2. TITLE: MAINTAIN FOOD LABORATORY SAFETY.**
- Specific outcome 2.1: Demonstrate knowledge of the implication of statutory regulations in a food laboratory.
- Specific outcome 2.2: Demonstrate knowledge of safety aspects in a food laboratory.
- Specific outcome 2.3: Demonstrate and apply knowledge of safe handling and storage of equipment and reagents in a food laboratory.
- Specific outcome 2.4: Practice effective housekeeping in a food laboratory.

3. **TITLE:** **RECEIVE AND STORE RAW MILK OR CREAM IN A SILO AT A MILK RECEPTION FACILITY.**
- Specific outcome 3.1: Demonstrate knowledge of milk or cream reception equipment and storage areas.
- Specific outcome 3.2: Prepare for raw milk or cream intake at the milk reception area.
- Specific outcome 3.3: Receive and store raw milk or cream at the milk reception area.
- Specific outcome 3.4: Perform end of process duties.
4. **TITLE:** **EVALUATE THE QUALITY OF MILK IN TERMS OF ITS PROTEIN STABILITY, AS INDICATED BY THE ALISAROL TEST.**
- Specific outcome 4.1: Demonstrate knowledge of determining the protein stability of milk.
- Specific outcome 4.2: Prepare for the alisarol test on a milk sample.
- Specific outcome 4.3: Perform the alisarol test on milk.
- Specific outcome 4.4: Report on the quality of milk in terms of its protein stability.
5. **TITLE:** **EVALUATE THE QUALITY OF MILK OR A DAIRY PRODUCT IN TERMS OF ITS TITRATABLE ACIDITY.**
- Specific outcome 5.1: Demonstrate knowledge of the determination of titratable acidity of milk or a dairy product.
- Specific outcome 5.2: Prepare for determining the titratable acidity of milk or a dairy product.
- Specific outcome 5.3: Determine the titratable acidity of milk or a dairy product under laboratory conditions.
- Specific outcome 5.4: Report on the quality of milk or a dairy product in terms of its titratable acidity.
6. **TITLE:** **CLEAN AND SANITISE A FOOD PROCESSING SYSTEM USING AN AUTOMATED CLEANING-IN-PLACE SYSTEM.**
- Specific outcome 6.1: Demonstrate knowledge of cleaning-in-place systems.
- Specific outcome 6.2: Prepare to clean and sanitise a food processing system.
- Specific outcome 6.3: Clean and sanitise a food processing system.
- Specific outcome 6.4: Perform end of cleaning-in-place procedures.

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- 7 TITLE: DEMONSTRATE KNOWLEDGE OF THE NATURE OF MILK AND ITS TRANSFORMATION INTO COMMERCIAL DAIRY PRODUCTS.**
- Specific outcome 7.1: Demonstrate knowledge of the origin of mammal milk.
- Specific outcome 7.2: Demonstrate knowledge of the nutritional importance of mammal milk.
- Specific outcome 7.3: Demonstrate knowledge of the physical-chemical nature of milk components.
- Specific outcome 7.4: Demonstrate knowledge of the physical properties of milk.
- Specific outcome 7.5: Demonstrate knowledge of the transformation of milk into commercial dairy products.
- 8. TITLE: DEMONSTRATE KNOWLEDGE OF INTRODUCTORY PRINCIPLES OF CHEMISTRY AND PHYSICS.**
- Specific outcome 8.1: Demonstrate knowledge of the nature of matter.
- Specific outcome 8.2: Demonstrate knowledge of the nature of water.
- Specific outcome 8.3: Demonstrate knowledge of temperature, energy and heat.
- Specific outcome 8.4: Demonstrate knowledge of introductory principles of physics.
- 9. TITLE: DETERMINE THE VOLUME OF BULK MILK BY MEANS OF A WEIGH BRIDGE.**
- Specific outcome 9.1: Demonstrate knowledge of volume determination by means of a weigh bridge.
- Specific outcome 9.2: Prepare to determine the volume of milk in a milk tanker.
- Specific outcome 9.3: Determine the volume of milk in a milk tanker.
- Specific outcome 9.4: Perform end of process duties.
- 10. TITLE: EVALUATE THE QUALITY OF RAW MILK IN TERMS OF ITS ANTIBIOTICS CONTENT.**
- Specific outcome 10.1: Demonstrate knowledge of testing for the presence of antibiotics in raw milk.
- Specific outcome 10.2: Prepare for determining the antibiotics content of raw milk.
- Specific outcome 10.3: Test for the presence of antibiotics in raw milk.
- Specific outcome 10.4: Report on the quality of raw milk in terms of its antibiotics content.

11. TITLE: APPLY KNOWLEDGE OF THE EFFECT OF MICRO-ORGANISMS ON PERSONAL HEALTH, HYGIENE AND FOOD SAFETY.

- Specific outcome 11.1: Maintain health and hygiene in a food environment.
- Specific outcome 11.2: Demonstrate knowledge of the concept of micro-organisms in a food environment.
- Specific outcome 11.3: Demonstrate knowledge of the growth and reproduction of micro-organisms.
- Specific outcome 11.4: Identify microbiological critical control points in a food environment.

12. TITLE: DEMONSTRATE KNOWLEDGE OF THE EFFECT OF MICRO-ORGANISMS ON THE QUALITY OF RAW MILK DURING RAW MILK HANDLING.

- Specific outcome 12.1: Demonstrate knowledge of hygienic practices during raw milk collection and storage on the farm.
- Specific outcome 12.2: Demonstrate knowledge of hygienic practices during raw milk reception and storage at the factory.
- Specific outcome 12.3: Demonstrate knowledge of the characteristics of micro-organisms found in raw milk.
- Specific outcome 12.4: Identify good manufacturing practices during raw milk handling.

13. TITLE: COLLATE AND SHRINK-WRAP PACKAGED PRODUCTS USING AUTOMATED WRAPPING EQUIPMENT.

- Specific outcome 13.1: Demonstrate knowledge of collating and shrink-wrapping.
- Specific outcome 13.2: Prepare to collate and shrink-wrap packaged products.
- Specific outcome 13.3: Collate and shrink-wrap packaged products.
- Specific outcome 13.4: Perform end of shrink-wrapping procedures.

- 14. TITLE: EVALUATE THE ACCEPTABILITY OF RAW MILK ON THE FARM FOR BULK MILK COLLECTION.**
- Specific outcome 14.1: Demonstrate knowledge of milk intake tests on the farm.
- Specific outcome 14.2: Prepare for temperature and alisarol tests.
- Specific outcome 14.3: Determine the quality of raw milk on the farm.
- Specific outcome 14.4: Report on the quality of raw milk in terms of its acceptability for bulk milk collection on the farm.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3

- 1. TITLE: Evaluate the quality of a food product in terms of its pH.**
- Specific outcome 1.1: Demonstrate knowledge of pH-determination on food products.
- Specific outcome 1.2: Prepare for pH-determination on a food product.
- Specific outcome 1.3: Calibrate a pH-meter.
- Specific outcome 1.4: Determine the pH of a food product.
- Specific outcome 1.5: Report on the quality of a food product in terms of its pH.
- 2. TITLE: EVALUATE THE QUALITY OF RAW MILK IN TERMS OF ITS MICROBIAL LOAD, AS INDICATED BY THE RESAZURIN TEST.**
- Specific outcome 2.1: Demonstrate knowledge of the resazurin test as a microbiological intake test.
- Specific outcome 2.2: Prepare for the resazurin test on raw milk.
- Specific outcome 2.3: Perform the resazurin test on raw milk.
- Specific outcome 2.4: Report on the microbial quality of raw milk in terms of the results of the resazurin test.

- 3. TITLE: EVALUATE THE QUALITY OF A DAIRY PRODUCT IN TERMS OF ITS FAT CONTENT, AS INDICATED BY THE GERBER FAT DETERMINATION METHOD.**
- Specific outcome 3.1: Demonstrate knowledge of determining the fat content of dairy products by means of the Gerber fat test.
- Specific outcome 3.2: Prepare for the Gerber fat test on a dairy product.
- Specific outcome 3.3: Determine the fat content of a dairy product with the Gerber fat test.
- Specific outcome 3.4: Report on the quality of a dairy product in terms of its Gerber fat content.
- 4. TITLE: EVALUATE THE QUALITY OF MILK IN TERMS OF ITS SOLIDS-NON-FAT CONTENT.**
- Specific outcome 4.1: Demonstrate knowledge of determining the solids-non-fat content of milk.
- Specific outcome 4.2: Prepare for determining the solids-non-fat content of milk.
- Specific outcome 4.3: Determine the solids-non-fat in milk content of milk by means of a lactometer.
- Specific outcome 4.4: Report on the quality of milk in terms of its solids-non-fat content.
- 5. TITLE: EVALUATE THE QUALITY OF MILK IN TERMS OF ITS FREEZING POINT.**
- Specific outcome 5.1: Demonstrate knowledge of the determining the freezing point of milk.
- Specific outcome 5.2: Prepare for determining the freezing point of milk.
- Specific outcome 5.3: Calibrate a cryoscope.
- Specific outcome 5.4: Determine the freezing point of milk.
- Specific outcome 5.5: Report on the quality of milk in terms of its freezing point.

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- 6. TITLE: EVALUATE THE COMPOSITION OF RAW MILK AS DETERMINED BY AN INFRA RED ANALYSER.**
- Specific outcome 6.1: Demonstrate knowledge of the determination of raw milk composition by means of an infra red analyser.
- Specific outcome 6.2: Prepare to determine the composition of raw milk with an infra red analyser.
- Specific outcome 6.3: Calibrate an infra red analyser.
- Specific outcome 6.4: Determine the composition of raw milk with an infra red analyser.
- Specific outcome 6.5: Report on the composition of raw milk.
- 7. TITLE: EVALUATE THE QUALITY OF CREAM IN TERMS OF ITS FAT CONTENT, AS INDICATED BY THE BABCOCK FAT DETERMINATION METHOD.**
- Specific outcome 7.1: Demonstrate knowledge of determining the fat content of cream by means of the Babcock method.
- Specific outcome 7.2: Prepare for the Babcock test on cream.
- Specific outcome 7.3: Determine the fat content of cream with the Babcock test.
- Specific outcome 7.4: Report on the quality of cream in terms of its fat content.

**NATIONAL CERTIFICATE IN FOOD AND BEVERAGES QUALITY CONTROL AND
ASSURANCE PRACTICES: DAIRY LABORATORY ANALYST**

Field: Manufacturing, Engineering and Technology

Sub-Field: Manufacturing and Assembly

NQF Level: 3

Credits: 137

Purpose: 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.

QUALIFICATION TITLE MATRIX

		Credits
Fundamental		
Level 3	• Language	20
	• Mathematics	16
	Total 36	
Core		
Level 2	• Maintain food laboratory safety.	4
Level 3	• Monitor quality control practices in a food manufacturing environment (To be submitted by the Food SGB).	4
	• Apply microbiological principles in a food environment.	6
	• Demonstrate knowledge of chemistry principles	6
	• Produce word processing documents for business (Registered).	5
	• Produce presentation documents for business (Registered).	5
	• Produce and use spread sheets for business (Registered).	5
Total 35		
Compulsory Electives		
Level 2	• Demonstrate knowledge of the nature of milk and its transformation into commercial dairy products.	5
	• Evaluate the quality of milk in terms of its protein stability, as indicated by the alisarol test.	3
	• Evaluate the quality of raw milk in terms of its antibiotics content.	3
Level 3	• Evaluate the quality of a food product in terms of its pH.	4
	• Evaluate the quality of a dairy product in terms of its fat content, as indicated by the Gerber fat determination method.	4
	• Evaluate the sensory quality of pasteurised milk.	5
	• Evaluate the quality of milk in terms of its solids-non-fat content.	3
Level 4	• Demonstrate knowledge of the functional components of milk.	7
Total 34		

Choice Electives	(Choose a minimum of 32 credits)	
Level 1	<ul style="list-style-type: none"> Prepare glassware and media for determination procedures in a food laboratory. 	4
Level 2	<ul style="list-style-type: none"> Evaluate the quality of a milk or a dairy product in terms of its titratable acidity. Evaluate the quality of a dairy powder in terms of its solubility. Evaluate the quality of a dairy powder in terms of the amount of scorched particles. 	3 2 2
Level 3	<ul style="list-style-type: none"> Evaluate the quality of milk in terms of its freezing point. Evaluate the quality of raw milk in terms of its microbial load, as indicated by the resazurin test. Evaluate the efficiency of milk or cream pasteurisation, as indicated by the phosphatase test. Evaluate the quality of a fruit juice, fruit juice concentrate or fruit-milk mixture, as indicated by its Brix-acid ratio. Evaluate the quality of a food product in terms of its Brix-value. Evaluate the efficiency of homogenisation of a liquid dairy product, as indicated by the homogenisation index. Evaluate the microbiological quality of a food product by means of pour plate methods. Evaluate the quality of a food product in terms of its fat content as indicated by the Mojonnier fat determination method. Evaluate the quality of a dairy powder in terms of its moisture content, as indicated by the Toluene Distillation Method. Evaluate the quality of instant milk powder in terms of its dispersibility. Evaluate the quality of a dairy powder in terms of its bulk density. Evaluate the quality of cream in terms of its fat content, as indicated by the Babcock fat determination method. Evaluate the fat-, salt-, moisture- and solids-non-fat content of butter as indicated by the Kohman test. Evaluate the quality of a food product in terms of its moisture content using the oven drying method. Evaluate the activity of a starter culture in terms of its pH or % titratable acidity. Evaluate the quality of a food product in terms of its viscosity. Evaluate the composition of raw milk as determined by an infra-red analyser. Evaluate the quality of cheese in terms of its salt content. 	4 4 4 2 2 2 12 5 3 2 2 4 5 3 2 3 6 3

Level 4	• Evaluate the microbiological quality of a food product as indicated by the test for <i>Salmonella</i> .	5
	• Evaluate the microbiological quality of a food product as indicated by the test for <i>Staphylococcus aureus</i> .	5
	• Evaluate the extent of saturation of butterfat (in cream or butter) as indicated by its iodine value.	4
	• Evaluate the compositional and sensory quality of butter.	6
	• Evaluate the compositional and sensory quality of cheese.	8
	• Evaluate the compositional and sensory quality of dried dairy products.	5
	• Evaluate the compositional and sensory quality of frozen dairy ice cream or ice cream related products.	5
	• Evaluate the compositional and sensory quality of fermented dairy products.	6
	• Evaluate the compositional and sensory quality of cottage cheese products.	5
	• Evaluate the compositional and sensory quality of liquid long life dairy products.	5
	• Evaluate the compositional and sensory quality of condensed milk products.	5
	• Evaluate the compositional and sensory quality of process cheese.	5
		Total 32
GRAND TOTAL		137

UNIT STANDARDS ON NQF LEVEL 1

Title 1: Prepare glassware and media for determination procedures in a food laboratory.

UNIT STANDARDS ON NQF LEVEL 2

Title 1: Maintain food laboratory safety.

Title 2: Evaluate the quality of milk in terms of its protein stability, as indicated by the alisarol test.

Title 3: Evaluate the quality of milk or a dairy product in terms of its titratable acidity.

Title 4: Demonstrate knowledge of the nature of milk and its transformation into commercial dairy products.

Title 5: Evaluate the quality of raw milk in terms of its antibiotics content.

Title 6: Evaluate the quality of a dairy powder in terms of its solubility.

Title 7: Evaluate the quality of a dairy powder in terms of the amount of scorched particles.

UNIT STANDARDS AT NQF LEVEL 3

Title 1: Evaluate the sensory quality of pasteurised milk.

Title 2: Evaluate the quality of a food product in terms of its pH.

Title 3: Evaluate the quality of raw milk in terms of its microbial load, as indicated by the resazurin test.

Title 4: Evaluate the quality of a dairy product in terms of its fat content, as indicated by the Gerber fat determination method.

Title 5: Evaluate the quality of milk in terms of its solids-non-fat content.

Title 6: Evaluate the quality of milk in terms of its freezing point.

Title 7: Apply microbiological principles in a food environment.

Title 8: Evaluate the efficiency of milk or cream pasteurisation, as indicated by the phosphatase test.

Title 9: Evaluate the quality of a fruit juice, fruit juice concentrate or fruit-milk mixture, as indicated by its Brix-acid ratio.

Title 10: Evaluate the quality of cheese in terms of its salt content.

Title 11: Evaluate the quality of a food product in terms of its moisture content using the oven drying method.

Title 12: Evaluate the quality of a dairy powder in terms of its moisture content, as indicated by the Toluene Distillation Method.

- Title 13: Evaluate the quality of a food product in terms of its fat content, as indicated by the Mojonnier fat determination method.
- Title 14: Evaluate the quality of instant milk powder in terms of its dispersibility.
- Title 15: Evaluate the quality of dairy powder in terms of its bulk density.
- Title 16: Evaluate the quality of a food product in terms of its Brix-value.
- Title 17: Evaluate the efficiency of homogenisation of a liquid dairy product, as indicated by the homogenisation index.
- Title 18: Evaluate the composition of raw milk as determined by an infra red analyser.
- Title 19: Evaluate the quality of a food product in terms of its viscosity.
- Title 20: Evaluate the microbiological quality of a food product by means of pour plate methods.
- Title 21: Evaluate the activity of a starter culture in terms of its pH or % titratable acidity.
- Title 22: Evaluate the quality of cream in terms of its fat content, as indicated by the Babcock fat determination method.
- Title 23: Evaluate the fat-, salt-, moisture- and solids-non-fat-content of butter as indicated by the Kohman-test.
- Title 24: Monitor quality control practices in a food manufacturing environment (To be submitted by the Food SGB).
- Title 25: Demonstrate knowledge of chemistry principles
- Title 26: Produce word processing documents for business (Registered).
- Title 27: Produce presentation documents for business (Registered).
- Title 28: Produce and use spread sheets for business (Registered).
- Title 29: Language unit standards (Interim registered unit standards).
- Title 30: Mathematics unit standards (Interim registered unit standards).

UNIT STANDARDS AT NQF LEVEL 4

- Title 1: Evaluate the microbiological quality of a food product, as indicated by the test for *Salmonella*.
- Title 2: Demonstrate knowledge of the functional components of milk.
- Title 3: Evaluate the compositional and sensory quality of butter.
- Title 4: Evaluate the extent of saturation of butterfat (in cream or butter), as indicated by its iodine value.
- Title 5: Evaluate the compositional and sensory quality of cheese.
- Title 6: Evaluate the compositional and sensory quality of dried dairy products.
- Title 7: Evaluate the compositional and sensory quality of frozen dairy ice cream or ice cream related products.
- Title 8: Evaluate the compositional and sensory quality of fermented dairy products.
- Title 9: Evaluate the compositional and sensory quality of cottage cheese products.
- Title 10: Evaluate the compositional and sensory quality of liquid long life dairy products.
- Title 11: Evaluate the compositional and sensory quality of condensed milk products.
- Title 12: Evaluate the microbiological quality of a food product as indicated by the test for *Staphylococcus aureus* (*S. aureus*).
- Title 13: Evaluate the compositional and sensory quality of process cheese.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 1

- 1. TITLE: PREPARE GLASSWARE AND MEDIA FOR DETERMINATION PROCEDURES IN A FOOD LABORATORY.**
- Specific outcome 1.1: Demonstrate knowledge of glassware and media preparation.
- Specific outcome 1.2: Prepare glassware and media for determination procedures.
- Specific outcome 1.3: Perform end of glassware and media preparation procedures.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2

- 1. TITLE: MAINTAIN FOOD LABORATORY SAFETY.**
 - Specific outcome 1.1: Demonstrate knowledge of the implication of statutory regulations in a food laboratory.
 - Specific outcome 1.2: Demonstrate knowledge of safety aspects in a food laboratory.
 - Specific outcome 1.3: Demonstrate and apply knowledge of safe handling and storage of equipment and reagents in a food laboratory.
 - Specific outcome 1.4: Practice effective housekeeping in a food laboratory.
- 2. TITLE: EVALUATE THE QUALITY OF MILK IN TERMS OF ITS PROTEIN STABILITY, AS INDICATED BY THE ALISAROL TEST.**
 - Specific outcome 2.1: Demonstrate knowledge of determining the protein stability of milk.
 - Specific outcome 2.2: Prepare for the alisarol test on a milk sample.
 - Specific outcome 2.3: Perform the alisarol test on milk.
 - Specific outcome 2.4: Report on the quality of milk in terms of its protein stability.
- 3. TITLE: EVALUATE THE QUALITY OF MILK OR A DAIRY PRODUCT IN TERMS OF ITS TITRATABLE ACIDITY.**
 - Specific outcome 3.1: Demonstrate knowledge of the determination of titratable acidity of milk or a dairy product.
 - Specific outcome 3.2: Prepare for determining the titratable acidity of milk or a dairy product.
 - Specific outcome 3.3: Determine the titratable acidity of milk or a dairy product under laboratory conditions.
 - Specific outcome 3.4: Report on the quality of milk or a dairy product in terms of its titratable acidity.

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4. **TITLE:** **DEMONSTRATE KNOWLEDGE OF THE NATURE OF MILK AND ITS TRANSFORMATION INTO COMMERCIAL DAIRY PRODUCTS.**
- Specific outcome 4.1: Demonstrate knowledge of the origin of mammal milk.
- Specific outcome 4.2: Demonstrate knowledge of the nutritional importance of mammal milk.
- Specific outcome 4.3: Demonstrate knowledge of the physical-chemical nature of milk components.
- Specific outcome 4.4: Demonstrate knowledge of the physical properties of milk.
- Specific outcome 4.5: Demonstrate knowledge of the transformation of milk into commercial dairy products.
5. **TITLE:** **EVALUATE THE QUALITY OF RAW MILK IN TERMS OF ITS ANTIBIOTICS CONTENT.**
- Specific outcome 5.1: Demonstrate knowledge of testing for the presence of antibiotics in raw milk.
- Specific outcome 5.2: Prepare for determining the antibiotics content of raw milk.
- Specific outcome 5.3: Test for the presence of antibiotics in raw milk.
- Specific outcome 5.4: Report on the quality of raw milk in terms of its antibiotics content.
6. **TITLE:** **EVALUATE THE QUALITY OF A DAIRY POWDER IN TERMS OF ITS SOLUBILITY.**
- Specific outcome 6.1: Demonstrate knowledge of determining the solubility index of a dairy powder.
- Specific outcome 6.2: Prepare for determining the solubility index of a dairy powder.
- Specific outcome 6.3: Determine the solubility index of a dairy powder.
- Specific outcome 6.4: Report on the quality of a dairy powder in terms of its solubility.
7. **TITLE:** **EVALUATE THE QUALITY OF A DAIRY POWDER IN TERMS OF THE AMOUNT OF SCORCHED PARTICLES.**
- Specific outcome 7.1: Demonstrate knowledge of the scorched particle test on a dairy powder.
- Specific outcome 7.2: Prepare for the scorched particle test on a dairy powder.
- Specific outcome 7.3: Perform the scorched particle test on a dairy powder.
- Specific outcome 7.4: Report on the quality of a dairy powder in terms of the amount of scorched particles.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3**1. TITLE: EVALUATE THE SENSORY QUALITY OF PASTEURISED MILK.**

- Specific outcome 1.1: Demonstrate knowledge of the sensory quality of pasteurised milk.
- Specific outcome 1.2: Prepare for the determination of the sensory quality of pasteurised milk.
- Specific outcome 1.3: Determine the sensory quality of pasteurised milk.
- Specific outcome 1.4: Report on the sensory quality of pasteurised milk.

2. TITLE: EVALUATE THE QUALITY OF A FOOD PRODUCT IN TERMS OF ITS PH.

- Specific outcome 2.1: Demonstrate knowledge of pH-determination on food products.
- Specific outcome 2.2: Prepare for pH-determination on a food product.
- Specific outcome 2.3: Calibrate a pH-meter.
- Specific outcome 2.4: Determine the pH of a food product.
- Specific outcome 2.5: Report on the quality of a food product in terms of its pH.

3. TITLE: EVALUATE THE QUALITY OF RAW MILK IN TERMS OF ITS MICROBIAL LOAD, AS INDICATED BY THE RESAZURIN TEST.

- Specific outcome 3.1: Demonstrate knowledge of the resazurin test as a microbiological intake test.
- Specific outcome 3.2: Prepare for the resazurin test on raw milk.
- Specific outcome 3.3: Perform the resazurin test on raw milk.
- Specific outcome 3.4: Report on the microbial quality of raw milk in terms of the results of the resazurin test.

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4. **TITLE:** **EVALUATE THE QUALITY OF A DAIRY PRODUCT IN TERMS OF ITS FAT CONTENT, AS INDICATED BY THE GERBER FAT DETERMINATION METHOD.**
- Specific outcome 4.1: Demonstrate knowledge of determining the fat content of dairy products by means of the Gerber fat test.
- Specific outcome 4.2: Prepare for the Gerber fat test on a dairy product.
- Specific outcome 4.3: Determine the fat content of a dairy product with the Gerber fat test.
- Specific outcome 4.4: Report on the quality of a dairy product in terms of its Gerber fat content.
5. **TITLE:** **EVALUATE THE QUALITY OF MILK IN TERMS OF ITS SOLIDS-NON-FAT CONTENT.**
- Specific outcome 5.1: Demonstrate knowledge of determining the solids-non-fat content of milk.
- Specific outcome 5.2: Prepare for determining the solids-non-fat content of milk.
- Specific outcome 5.3: Determine the solids-non-fat in milk content of milk by means of a lactometer.
- Specific outcome 5.4: Report on the quality of milk in terms of its solids-non-fat content.
6. **TITLE:** **EVALUATE THE QUALITY OF MILK IN TERMS OF ITS FREEZING POINT.**
- Specific outcome 6.1: Demonstrate knowledge of the determining the freezing point of milk.
- Specific outcome 6.2: Prepare for determining the freezing point of milk.
- Specific outcome 6.3: Calibrate a cryoscope.
- Specific outcome 6.4: Determine the freezing point of milk.
- Specific outcome 6.5: Report on the quality of milk in terms of its freezing point.
7. **TITLE:** **APPLY MICROBIOLOGICAL PRINCIPLES IN A FOOD ENVIRONMENT.**
- Specific outcome 7.1: Demonstrate knowledge of the occurrence of micro-organisms in a food environment.
- Specific outcome 7.2: Demonstrate knowledge of the preventative methods and procedures for microbial growth in a food environment.
- Specific outcome 7.3: Maintain microbiological food safety procedures and practices in a food environment.

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- 8. TITLE: EVALUATE THE EFFICIENCY OF MILK OR CREAM PASTEURISATION, AS INDICATED BY THE PHOSPHATASE TEST.**
- Specific outcome 8.1: Demonstrate knowledge of determining milk or cream pasteurisation efficiency by means of the phosphatase test.
- Specific outcome 8.2: Prepare for the phosphatase test on milk or cream.
- Specific outcome 8.3: Perform the phosphatase test on milk or cream.
- Specific outcome 8.4: Report on the efficiency of milk or cream pasteurisation in terms of the results of the phosphatase test.
- 9. TITLE: EVALUATE THE QUALITY OF A FRUIT JUICE, FRUIT JUICE CONCENTRATE OR FRUIT-MILK MIXTURE, AS INDICATED BY ITS BRIX-ACID RATIO.**
- Specific outcome 9.1: Demonstrate knowledge of determining the Brix-acid ratio.
- Specific outcome 9.2: Prepare for the determination of the % total soluble solids (°Brix) and titratable acidity.
- Specific outcome 9.3: Determine the % total soluble solids (°Brix), titratable acidity and Brix-acid ratio.
- Specific outcome 9.4: Report on the quality of a fruit juice, fruit juice concentrate or fruit-milk mixture in terms of its Brix-acid ratio.
- 10. TITLE: EVALUATE THE QUALITY OF CHEESE IN TERMS OF ITS SALT CONTENT.**
- Specific outcome 10.1: Demonstrate knowledge of determining the salt content of cheese.
- Specific outcome 10.2: Prepare for the determination of the salt content of cheese.
- Specific outcome 10.3: Determine the salt content of cheese.
- Specific outcome 10.4: Report on the salt content of cheese.
- 11. TITLE: EVALUATE THE QUALITY OF A FOOD PRODUCT IN TERMS OF ITS MOISTURE CONTENT USING THE OVEN DRYING METHOD.**
- Specific outcome 11.1: Demonstrate knowledge of determining the moisture content of a food product.
- Specific outcome 11.2: Prepare for determining the moisture content of a food product.
- Specific outcome 11.3: Determine the moisture content of a food product by means of oven drying.
- Specific outcome 11.4: Report on the quality of a food product in terms of its moisture content.

- 12. TITLE: EVALUATE THE QUALITY OF A DAIRY POWDER IN TERMS OF ITS MOISTURE CONTENT, AS INDICATED BY THE TOLUENE DISTILLATION METHOD.**
- Specific outcome 12.1: Demonstrate knowledge of determining the moisture content of a dairy powder by means of toluene distillation.
- Specific outcome 12.2: Prepare for toluene distillation on a dairy powder.
- Specific outcome 12.3: Determine the moisture content of a dairy powder by means of toluene distillation.
- Specific outcome 12.4: Report on the quality of a dairy powder in terms of its moisture content.
- 13. TITLE: EVALUATE THE QUALITY OF A FOOD PRODUCT IN TERMS OF ITS FAT CONTENT, AS INDICATED BY THE MOJONNIER FAT DETERMINATION METHOD**
- Specific outcome 13.1: Demonstrate knowledge of determining the fat content of food products by means of the Mojonnier fat test.
- Specific outcome 13.2: Prepare for the Mojonnier fat test on a food product.
- Specific outcome 13.3: Determine the fat content of a food product with the Mojonnier fat test.
- Specific outcome 13.4: Report on the quality of a food product in terms of its Mojonnier fat content.
- 14. TITLE: EVALUATE THE QUALITY OF INSTANT MILK POWDER IN TERMS OF ITS DISPERSIBILITY.**
- Specific outcome 14.1: Demonstrate knowledge of determining the dispersibility of instant milk powder.
- Specific outcome 14.2: Prepare for determining the dispersibility of instant milk powder.
- Specific outcome 14.3: Determine the dispersibility of instant milk powder.
- Specific outcome 14.4: Report on the quality of instant milk powder in terms of its dispersibility.
- 15. TITLE: EVALUATE THE QUALITY OF A DAIRY POWDER IN TERMS OF ITS BULK DENSITY.**
- Specific outcome 15.1: Demonstrate knowledge of determining the bulk density of a dairy powder.
- Specific outcome 15.2: Prepare for determining the bulk density of a dairy powder.
- Specific outcome 15.3: Determine the bulk density of a dairy powder.
- Specific outcome 15.4: Report on the quality of a dairy powder in terms of its bulk density.

- 16. TITLE: EVALUATE THE QUALITY OF A FOOD PRODUCT IN TERMS OF ITS BRIX-VALUE.**
- Specific outcome 16.1: Demonstrate knowledge of determining the % total soluble solids (Brix-value) of a food product.
- Specific outcome 16.2: Prepare for the determination of the % total soluble solids (Brix-value).
- Specific outcome 16.3: Determine the % total soluble solids (Brix-value) of a food product.
- Specific outcome 16.4: Report on the quality of a food product in terms of its % total soluble solids (Brix-value).
- 17. TITLE: EVALUATE THE EFFICIENCY OF HOMOGENISATION OF A LIQUID DAIRY PRODUCT, AS INDICATED BY THE HOMOGENISATION INDEX.**
- Specific outcome 17.1: Demonstrate knowledge of determining the homogenisation index of liquid dairy products.
- Specific outcome 17.2: Prepare for the determination of the homogenisation index.
- Specific outcome 17.3: Determine the homogenisation index of a liquid dairy product.
- Specific outcome 17.4: Report on the efficiency of homogenisation in terms of the homogenisation index.
- 18. TITLE: EVALUATE THE COMPOSITION OF RAW MILK AS DETERMINED BY AN INFRA RED ANALYSER.**
- Specific outcome 18.1: Demonstrate knowledge of the determination of raw milk composition by means of an infra red analyser.
- Specific outcome 18.2: Prepare to determine the composition of raw milk with an infra red analyser.
- Specific outcome 18.3: Calibrate an infra red analyser.
- Specific outcome 18.4: Determine the composition of raw milk with an infra red analyser.
- Specific outcome 18.5: Report on the composition of raw milk.
- 19. TITLE: EVALUATE THE QUALITY OF A FOOD PRODUCT IN TERMS OF ITS VISCOSITY.**
- Specific outcome 19.1: Demonstrate knowledge of determining the viscosity of food products.
- Specific outcome 19.2: Prepare for the determination of the viscosity of food products.
- Specific outcome 19.3: Determine the viscosity of a food product.
- Specific outcome 19.4: Report on the quality of a food product in terms of its viscosity.

20. TITLE: EVALUATE THE MICROBIOLOGICAL QUALITY OF A FOOD PRODUCT BY MEANS OF POUR PLATE METHODS.

- Specific outcome 20.1: Demonstrate knowledge of microbiological pour plate methods.
- Specific outcome 20.2: Prepare for pour plate methods on a food product.
- Specific outcome 20.3: Perform pour plate methods on a food product.
- Specific outcome 20.4: Report on the microbiological quality of a food product in terms of the results of the pour plate methods.

21. TITLE: EVALUATE THE ACTIVITY OF A STARTER CULTURE IN TERMS OF ITS PH OR % TITRATABLE ACIDITY.

- Specific outcome 21.1: Demonstrate knowledge of determining starter culture activity.
- Specific outcome 21.2: Prepare for the determination the activity of a starter culture.
- Specific outcome 21.3: Determine the activity of a starter culture.
- Specific outcome 21.4: Report on the activity of a starter culture in terms of its pH or % titratable acidity.

22. TITLE: EVALUATE THE QUALITY OF CREAM IN TERMS OF ITS FAT CONTENT, AS INDICATED BY THE BABCOCK FAT DETERMINATION METHOD.

- Specific outcome 22.1: Demonstrate knowledge of determining the fat content of cream by means of the Babcock method.
- Specific outcome 22.2: Prepare for the Babcock test on cream.
- Specific outcome 22.3: Determine the fat content of cream with the Babcock test.
- Specific outcome 22.4: Report on the quality of cream in terms of its fat content.

23. TITLE: EVALUATE THE FAT-, SALT-, MOISTURE- AND SOLIDS-NON-FAT CONTENT OF BUTTER AS INDICATED BY THE KOHMAN TEST.

- Specific outcome 23.1: Demonstrate knowledge of performing the Kohman test on butter.
- Specific outcome 23.2: Prepare for the Kohman test on butter.
- Specific outcome 23.3: Determine the fat-, salt-, moisture- and solids-non-fat content of butter by means of the Kohman test.
- Specific outcome 23.4: Report on the quality of butter in terms of the results of the Kohman test.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4

- 1. TITLE: EVALUATE THE MICROBIOLOGICAL QUALITY OF A FOOD PRODUCT, AS INDICATED BY THE TEST FOR *SALMONELLA*.**

Specific outcome 1.1: Demonstrate knowledge of the *Salmonella* test as a microbiological test.

Specific outcome 1.2: Prepare for the *Salmonella* test on a food product.

Specific outcome 1.3: Perform the *Salmonella* test on a food product.

Specific outcome 1.4: Report on the microbiological quality of a food product in terms of the results of the *Salmonella* test.
- 2. TITLE: DEMONSTRATE KNOWLEDGE OF THE FUNCTIONAL COMPONENTS OF MILK.**

Specific outcome 2.1: Demonstrate knowledge of the chemical composition of milk proteins, fat and lactose.

Specific outcome 2.2: Demonstrate knowledge of the nutritional and health aspects of milk proteins, fat and lactose.

Specific outcome 2.3: Demonstrate knowledge of the functional properties of milk proteins, fat and lactose.

Specific outcome 2.4: Demonstrate knowledge of the changes in milk proteins, fat and lactose that influence the quality of dairy products.
- 3. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF BUTTER.**

Specific outcome 3.1: Demonstrate knowledge of the compositional quality of butter.

Specific outcome 3.2: Demonstrate knowledge of the sensory quality of butter.

Specific outcome 3.3: Determine the compositional and sensory quality of butter.

Specific outcome 3.4: Report on the compositional and sensory quality of butter.
- 4. TITLE: EVALUATE THE EXTENT OF SATURATION OF BUTTERFAT (IN CREAM OR BUTTER), AS INDICATED BY ITS IODINE VALUE.**

Specific outcome 4.1: Demonstrate knowledge of determining the iodine value of butterfat.

Specific outcome 4.2: Prepare for determining the iodine value of butterfat.

Specific outcome 4.3: Determine the iodine value of butterfat.

Specific outcome 4.4: Report on the extent of butterfat saturation in terms of its iodine value.

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5. **TITLE:** **EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF CHEESE.**
- Specific outcome 5.1: Demonstrate knowledge of the compositional quality of cheese.
- Specific outcome 5.2: Demonstrate knowledge of the sensory quality of cheese.
- Specific outcome 5.3: Determine the compositional and sensory quality of cheese.
- Specific outcome 5.4: Report on the compositional and sensory quality of cheese.
6. **TITLE:** **EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF DRIED DAIRY PRODUCTS.**
- Specific outcome 6.1: Demonstrate knowledge of the compositional quality of dried dairy products.
- Specific outcome 6.2: Demonstrate knowledge of the sensory quality of dried dairy products.
- Specific outcome 6.3: Determine the compositional and sensory quality of a dried dairy product.
- Specific outcome 6.4: Report on the compositional and sensory quality of the dried dairy product.
7. **TITLE:** **EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF FROZEN DAIRY ICE CREAM OR ICE CREAM RELATED PRODUCTS.**
- Specific outcome 7.1: Demonstrate knowledge of the compositional quality of frozen dairy ice cream or ice cream related products.
- Specific outcome 7.2: Demonstrate knowledge of the sensory quality of frozen dairy ice cream or ice cream related products.
- Specific outcome 7.3: Determine the compositional and sensory quality of a frozen dairy ice cream or ice cream related product.
- Specific outcome 7.4: Report on the compositional and sensory quality of the frozen dairy ice cream or ice cream related product.
8. **TITLE:** **EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF FERMENTED DAIRY PRODUCTS.**
- Specific outcome 8.1: Demonstrate knowledge of the compositional quality of fermented dairy products.
- Specific outcome 8.2: Demonstrate knowledge of the sensory quality of fermented dairy products.
- Specific outcome 8.3: Determine the compositional and sensory quality of a fermented dairy product.
- Specific outcome 8.4: Report on the compositional and sensory quality of the fermented dairy product.

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- 9. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF COTTAGE CHEESE PRODUCTS.**
- Specific outcome 9.1: Demonstrate knowledge of the compositional quality of cottage cheese.
- Specific outcome 9.2: Demonstrate knowledge of the sensory quality of cottage cheese.
- Specific outcome 9.3: Determine the compositional and sensory quality of cottage cheese.
- Specific outcome 9.4: Report on the compositional and sensory quality of cottage cheese.
- 10. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF LIQUID LONG LIFE DAIRY PRODUCTS.**
- Specific outcome 10.1: Demonstrate knowledge of the compositional quality of liquid long life dairy products.
- Specific outcome 10.2: Demonstrate knowledge of the sensory quality of liquid long life dairy products.
- Specific outcome 10.3: Determine the compositional and sensory quality of a liquid long life dairy product.
- Specific outcome 10.4: Report on the compositional and sensory quality of the liquid long life dairy product.
- 11. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF CONDENSED MILK PRODUCTS.**
- Specific outcome 11.1: Demonstrate knowledge of the compositional quality of condensed milk.
- Specific outcome 11.2: Demonstrate knowledge of the sensory quality of condensed milk.
- Specific outcome 11.3: Determine the compositional and sensory quality of condensed milk.
- Specific outcome 11.4: Report on the compositional and sensory quality of condensed milk.
- 12. TITLE: EVALUATE THE MICROBIOLOGICAL QUALITY OF A FOOD PRODUCT AS INDICATED BY THE TEST FOR STAPHYLOCOCCUS AUREUS (S. AUREUS).**
- Specific outcome 12.1: Demonstrate knowledge of the *S. aureus* test as a microbiological quality test.
- Specific outcome 12.2: Prepare for the *S. aureus* test on a food product.
- Specific outcome 12.3: Perform the *S. aureus* test on a food product.

Specific outcome 12.4: Report on the microbiological quality of a food product in terms of the results of the *S. aureus* test.

13. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF PROCESS CHEESE.

Specific outcome 13.1: Demonstrate knowledge of the compositional quality of process cheese.

Specific outcome 13.2: Demonstrate knowledge of the sensory quality of process cheese.

Specific outcome 13.3: Determine the compositional and sensory quality of process cheese.

Specific outcome 13.4: Report on the compositional and sensory quality of process cheese.

**NATIONAL CERTIFICATE IN FOOD AND BEVERAGES PROCESSING: DAIRY
PRIMARY PROCESSING**

Field	:	Manufacturing, Engineering and Technology
Sub-Field	:	Manufacturing and Assembly
NQF Level	:	3
Credits	:	120
Purpose of the Qualification	:	<p>The national certificate in food and beverages processing: dairy primary processing has the following purpose:</p> <p>A person acquiring this qualification will be able to produce pasteurized 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.</p> <p>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.</p> <p>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.</p>

QUALIFICATION TITLE MATRIX

		Credits
Fundamental		
Level 3	<ul style="list-style-type: none">• Language• Mathematics	20
		16
Core		
Level 2	<ul style="list-style-type: none">• Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment (To be submitted by the Food SGB).• Clean and sanitise a food processing system using an automated cleaning-in-place system.• Demonstrate knowledge of and produce computer spread sheets using base functions (Registered).	4
		5
		3
Level 3	<ul style="list-style-type: none">• Demonstrate an understanding of food safety practices and procedures in a food manufacturing environment (To be submitted by the Food SGB).• Apply first line maintenance on processing equipment	7
		10
	<ul style="list-style-type: none">• Demonstrate an understanding of introductory business principles• Demonstrate an understanding of supply chain management• Monitor quality control practices in a food manufacturing environment (To be submitted by the Food SGB).	4
		3
		4
		Total 40
Compulsory Electives		
Level 2	<ul style="list-style-type: none">• Mix or blend food raw materials for processing using automated equipment (To be submitted by the Food SGB).• Demonstrate knowledge of heating and cooling media in a food manufacturing environment.	4
		3
Level 3	<ul style="list-style-type: none">• Pasteurise or thermise a liquid food product by means of a plate or tubular heat exchanger.• Apply microbiological principles in a food environment.• Evaluate the acceptability of raw milk in a silo for further processing.	8
		6
		5
		Total 26

Choice Electives (Choose a minimum of 18 credits)		
Level 2	• Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food products.	10
	• Operate and control the forming, filling and hermetic sealing of gable top or brick type cartons for food products.	12
	• Collate and shrink-wrap packaged products using automated wrapping equipment.	4
	• Operate and control the filling and closing of glass or rigid plastic containers for food products.	10
Level 3	• Standardise the fat content of a liquid dairy product.	7
	• Separate cream from milk or whey by means of a cream separator.	5
	• Evaluate the sensory quality of pasteurised milk.	5
	• Homogenise a liquid dairy product.	4
	• Evaluate the efficiency of homogenisation of a liquid dairy product as indicated by the homogenisation index.	2
	• Evaluate the efficiency of milk or cream pasteurisation, as indicated by the phosphatase test.	4
	• Evaluate the quality of a fruit juice, fruit juice concentrate or fruit-milk mixture, as indicated by its Brix-acid ratio.	2
	• Clarify or bacto-fuge milk by centrifugal force.	5
GRAND TOTAL		Total 18 120

UNIT STANDARDS AT NQF LEVEL 2

- Title 1: Demonstrate knowledge of heating and cooling media in a food manufacturing environment.
- Title 2: Clean and sanitise a food processing system using an automated cleaning-in-place system.
- Title 3: Operate and control the forming, filling and hermetic sealing of gable top or brick type cartons for food products.
- Title 4: Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food products.
- Title 5: Operate and control the filling and closing of glass or rigid plastic containers for food products.
- Title 6: Collate and shrink-wrap packaged products using automated wrapping equipment.
- Title 7: Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment (To be submitted by the Food SGB).
- Title 8: Mix or blend food raw materials for processing using automated equipment (To be submitted by the Food SGB).
- Title 9: Demonstrate knowledge of and produce computer spread sheets using base functions (Registered).

UNIT STANDARDS AT NQF LEVEL 3

- Title 1: Evaluate the sensory quality of pasteurised milk.
- Title 2: Standardise the fat content of a liquid dairy product.
- Title 3: Homogenise a liquid dairy product.
- Title 4: Separate cream from milk or whey by means of a cream separator.
- Title 5: Pasteurise or thermise a liquid food product by means of a plate or tubular heat exchanger.
- Title 6: Apply microbiological principles in a food environment.
- Title 7: Evaluate the efficiency of milk or cream pasteurisation, as indicated by the phosphatase test.
- Title 8: Evaluate the quality of a fruit juice, fruit juice concentrate or fruit-milk mixture, as indicated by its Brix-acid ratio.
- Title 9: Clarify or bactofoage milk by centrifugal force.

- Title 10: Evaluate the acceptability of raw milk in a silo for further processing.
- Title 11: Evaluate the efficiency of homogenisation of a liquid dairy product, as indicated by the homogenisation index.
- Title 12: Demonstrate an understanding of food safety practices and procedures in a food manufacturing environment (To be submitted by the Food SGB).
- Title 13: Monitor quality control practices in a food manufacturing environment (To be submitted by the Food SGB).
- Title 14: Apply first line maintenance on processing equipment
- Title 15: Demonstrate an understanding of supply chain management
- Title 16: Demonstrate an understanding of introductory business principles
- Title 17: Language unit standards (Interim registered unit standards).
- Title 18: Mathematics unit standards (Interim registered unit standards).

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2

- 1. TITLE: DEMONSTRATE KNOWLEDGE OF HEATING AND COOLING MEDIA IN A FOOD MANUFACTURING ENVIRONMENT.**
- Specific outcome 1.1: Demonstrate knowledge of the concept of energy.
- Specific outcome 1.2: Explain the generation and application of steam as a heating medium.
- Specific outcome 1.3: Explain the application of water and gasses as cooling media.
- Specific outcome 1.4: Explain the generation and application of electricity as an energy source for heating and cooling purposes.
- Specific outcome 1.5: Demonstrate knowledge of the safe handling of heating and cooling media.
- 2. TITLE: CLEAN AND SANITISE A FOOD PROCESSING SYSTEM USING AN AUTOMATED CLEANING-IN-PLACE SYSTEM.**
- Specific outcome 2.1: Demonstrate knowledge of cleaning-in-place systems.
- Specific outcome 2.2: Prepare to clean and sanitise a food processing system.
- Specific outcome 2.3: Clean and sanitise a food processing system.
- Specific outcome 2.4: Perform end of cleaning-in-place procedures.

2. TITLE: CLEAN AND SANITISE A FOOD PROCESSING SYSTEM USING AN AUTOMATED CLEANING-IN-PLACE SYSTEM.

- Specific outcome 2.1: Demonstrate knowledge of cleaning-in-place systems.
- Specific outcome 2.2: Prepare to clean and sanitise a food processing system.
- Specific outcome 2.3: Clean and sanitise a food processing system.
- Specific outcome 2.4: Perform end of cleaning-in-place procedures.

3. TITLE: OPERATE AND CONTROL THE FORMING, FILLING AND HERMETIC SEALING OF GABLE TOP OR BRICK TYPE CARTONS FOR FOOD PRODUCTS.

- Specific outcome 3.1: Demonstrate knowledge of hermetic gable top or brick type carton packaging.
- Specific outcome 3.2: Prepare to pack a food product in gable top or brick type cartons.
- Specific outcome 3.3: Pack a food product hermetically in gable top or brick type cartons.
- Specific outcome 3.4: Perform end of packaging procedures.

4. TITLE: OPERATE AND CONTROL THE FORMING, FILLING AND HERMETIC SEALING OF PLASTIC SACHETS OR BAGS FOR FOOD PRODUCTS.

- Specific outcome 4.1: Demonstrate knowledge of packaging of food products in plastic sachets or bags.
- Specific outcome 4.2: Prepare to pack a food product in plastic sachets or bags.
- Specific outcome 4.3: Pack a food product hermetically in plastic sachets or bags.
- Specific outcome 4.4: Perform end of packaging procedures.

5. Title: Operate and control the filling and closing of glass or rigid plastic containers for food products.

- Specific outcome 5.1: Demonstrate knowledge of filling and closing of glass or rigid plastic containers.
- Specific outcome 5.2: Prepare to fill and close glass or rigid plastic containers.
- Specific outcome 5.3: Fill and close glass or rigid plastic containers.
- Specific outcome 5.4: Perform end of filling and closing procedures.

6. TITLE: COLLATE AND SHRINK-WRAP PACKAGED PRODUCTS USING AUTOMATED WRAPPING EQUIPMENT.

- Specific outcome 6.1: Demonstrate knowledge of collating and shrink-wrapping.
- Specific outcome 6.2: Prepare to collate and shrink-wrap packaged products.
- Specific outcome 6.3: Collate and shrink-wrap packaged products.
- Specific outcome 6.4: Perform end of shrink-wrapping procedures.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3

1. TITLE: EVALUATE THE SENSORY QUALITY OF PASTEURISED MILK.

- Specific outcome 1.1: Demonstrate knowledge of the sensory quality of pasteurised milk.
- Specific outcome 1.2: Prepare for the determination of the sensory quality of pasteurised milk.
- Specific outcome 1.3: Determine the sensory quality of pasteurised milk.
- Specific outcome 1.4: Report on the sensory quality of pasteurised milk.

2. TITLE: STANDARDISE THE FAT CONTENT OF A LIQUID DAIRY PRODUCT.

- Specific outcome 2.1: Demonstrate knowledge of fat standardisation of liquid dairy products.
- Specific outcome 2.2: Prepare for standardisation.
- Specific outcome 2.3: Standardise a liquid dairy product.
- Specific outcome 2.4: Perform end of standardisation procedures.

3. TITLE: HOMOGENISE A LIQUID DAIRY PRODUCT.

- Specific outcome 3.1: Demonstrate knowledge of homogenisation of liquid dairy products.
- Specific outcome 3.2: Prepare to homogenise a liquid dairy product.
- Specific outcome 3.3: Homogenise a liquid dairy product.
- Specific outcome 3.4: Perform end of homogenisation procedures.

4. TITLE: SEPARATE CREAM FROM MILK OR WHEY BY MEANS OF A CREAM SEPARATOR.

Specific outcome 4.1: Demonstrate knowledge of cream separation.

Specific outcome 4.2: Prepare to separate cream from milk or whey.

Specific outcome 4.3: Separate cream from milk or whey.

Specific outcome 4.4: Perform end of separation procedures.

5. TITLE: PASTEURISE OR THERMISE A LIQUID FOOD PRODUCT BY MEANS OF A PLATE OR TUBULAR HEAT EXCHANGER.

Specific outcome 5.1: Demonstrate knowledge of pasteurisation or thermisation of liquid food products.

Specific outcome 5.2: Prepare to pasteurise or thermise a liquid food product.

Specific outcome 5.3: Pasteurise or thermise a liquid food product in a plate or tubular heat exchanger.

Specific outcome 5.4: Perform end of pasteurisation or thermisation duties.

6. TITLE: APPLY MICROBIOLOGICAL PRINCIPLES IN A FOOD ENVIRONMENT.

Specific outcome 6.1: Demonstrate knowledge of the occurrence of micro-organisms in a food environment.

Specific outcome 6.2: Demonstrate knowledge of the preventative methods and procedures for microbial growth in a food environment.

Specific outcome 6.3: Maintain microbiological food safety procedures and practices in a food environment.

7. TITLE: EVALUATE THE EFFICIENCY OF MILK OR CREAM PASTEURISATION, AS INDICATED BY THE PHOSPHATASE TEST.

Specific outcome 7.1: Demonstrate knowledge of determining milk or cream pasteurisation efficiency by means of the phosphatase test.

Specific outcome 7.2: Prepare for the phosphatase test on milk or cream.

Specific outcome 7.3: Perform the phosphatase test on milk or cream.

Specific outcome 7.4: Report on the efficiency of milk or cream pasteurisation in terms of the results of the phosphatase test.

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- 8. TITLE: EVALUATE THE QUALITY OF A FRUIT JUICE, FRUIT JUICE CONCENTRATE OR FRUIT-MILK MIXTURE, AS INDICATED BY ITS BRIX-ACID RATIO.**
- Specific outcome 8.1: Demonstrate knowledge of determining the Brix-acid ratio.
- Specific outcome 8.2: Prepare for the determination of the % total soluble solids (°Brix) and titratable acidity.
- Specific outcome 8.3: Determine the % total soluble solids (°Brix), titratable acidity and Brix-acid ratio.
- Specific outcome 8.4: Report on the quality of a fruit juice, fruit juice concentrate or fruit-milk mixture in terms of its Brix-acid ratio.
- 9. Title: Clarify or bactofuge milk by centrifugal force.**
- Specific outcome 9.1: Demonstrate knowledge of clarification or bactofugation of milk.
- Specific outcome 9.2: Prepare to clarify or bactofuge milk.
- Specific outcome 9.3: Clarify or bactofuge milk.
- Specific outcome 9.4: Perform end of clarification or bactofugation procedures.
- 10. TITLE: EVALUATE THE ACCEPTABILITY OF RAW MILK IN A SILO FOR FURTHER PROCESSING.**
- Specific outcome 10.1: Demonstrate knowledge of milk quality tests.
- Specific outcome 10.2: Prepare for milk quality tests.
- Specific outcome 10.3: Determine the quality of raw milk.
- Specific outcome 10.4: Report on the quality of raw milk in terms of its acceptability for further processing.
- 11. TITLE: EVALUATE THE EFFICIENCY OF HOMOGENISATION OF A LIQUID DAIRY PRODUCT, AS INDICATED BY THE HOMOGENISATION INDEX.**
- Specific outcome 11.1: Demonstrate knowledge of determining the homogenisation index of liquid dairy products.
- Specific outcome 11.2: Prepare for the determination of the homogenisation index.
- Specific outcome 11.3: Determine the homogenisation index of a liquid dairy product.
- Specific outcome 11.4: Report on the efficiency of homogenisation in terms of the homogenisation index.

**NATIONAL CERTIFICATE IN FOOD AND BEVERAGES MANUFACTURING
TECHNOLOGY: DAIRY SPECIALISATION**

Field: Manufacturing, Engineering and Technology

Sub-Field: Manufacturing and Assembly

NQF Level: 4

Credits: 153

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

A choice can be made from the following specialised dairy manufacturing domains:

- Butter and Dairy Based Spreads, or
- Ripened Cheese, or
- Cottage Cheese, or
- Dried Dairy Products, or
- Fermented Dairy Products, or
- Frozen Dairy Ice cream and Frozen Ice Cream Related Products, or
- Liquid Long Life Dairy Products, or
- Sweetened Condensed Milk, or
- Processed Cheese and Cheese Spreads.

QUALIFICATION TITLE MATRIX

		Credits
Fundamental		
Level 4	• Language	20
	• Mathematics	16
		Total 36
Core		
Level 3	• Apply first line maintenance on food processing equipment (To be searched).	10
	• Monitor quality control practices in a food manufacturing environment (To be submitted by the Food SGB).	4
	• Demonstrate an understanding of food safety practices and procedures in a food manufacturing environment (To be submitted by the Food SGB).	7
	• Produce word processing documents for business (Registered).	5
	• Produce presentation documents for business (Registered)	5
	• Produce and use spread sheets for business (Registered).	5
Level 4	• Demonstrate knowledge of financial principles related to processing and manufacturing processes	
	• Demonstrate knowledge of industrial relationship principles and legislation in a food processing environment	7
	• Implement and maintain food or beverage production plans (To be submitted by the Food SGB).	4
Level 5		4
		Total 51

Butter and Dairy Based Spreads manufacturing

		Credits
Compulsory Electives		
Level 2	<ul style="list-style-type: none">Operate and control the wrapping of a brick shaped food product.	10
Level 3	<ul style="list-style-type: none">Evaluate the acceptability of raw milk in a silo for further processing.	5
Level 4	<ul style="list-style-type: none">Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products.Demonstrate knowledge of the functional components of milk.Evaluate the compositional and sensory quality of butter.	8
		7
		6
		Total 36
Choice Electives (Choose at least one of the following unit standards)		
Level 4	<ul style="list-style-type: none">Manufacture butter by means of a batch churn.Manufacture butter with a continuous buttermaking machine.	25
		25
		Total 25
GRAND TOTAL		148

Ripened Cheese manufacturing

		Credits
Compulsory Electives		
Level 3	<ul style="list-style-type: none"> Evaluate the acceptability of raw milk in a silo for further processing. 	5
Level 4	<ul style="list-style-type: none"> Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products. 	8
	<ul style="list-style-type: none"> Demonstrate knowledge of the functional components of milk. 	7
	<ul style="list-style-type: none"> Demonstrate knowledge of the connection between milk constituents, syneresis and moisture control in cheese curd. 	3
	<ul style="list-style-type: none"> Coagulate milk for cheese manufacturing. 	5
	<ul style="list-style-type: none"> Evaluate the compositional and sensory quality of cheese. 	8
Choose at least one of the following compulsory electives:		
Level 4	<ul style="list-style-type: none"> Manufacture a green Cheddar type cheese from coagulated milk. 	30
	<ul style="list-style-type: none"> Manufacture a green Gouda or Grana type cheese from coagulated milk + Paint and wax cheese 	31
	<ul style="list-style-type: none"> Manufacture a green Mozzarella type cheese from coagulated milk. 	30
		Total 66
Choice Electives		
Level 1	<ul style="list-style-type: none"> Pack a food product under vacuum. 	1
Level 3	<ul style="list-style-type: none"> Clarify or bacto-fuge milk by centrifugal force. 	3
Level 4	<ul style="list-style-type: none"> Prepare a bulk starter culture for the manufacturing of fermented dairy products or cheese. 	4
GRAND TOTAL		153

Cottage Cheese manufacturing

		Credits
Compulsory Electives		
Level 2	<ul style="list-style-type: none"> Operate and control the filling and closing of glass or rigid plastic containers for food products. 	10
Level 3	<ul style="list-style-type: none"> Evaluate the acceptability of raw milk in a silo for further processing. 	5
Level 4	<ul style="list-style-type: none"> Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products. 	8
	<ul style="list-style-type: none"> Demonstrate knowledge of the functional components of milk. 	7
	<ul style="list-style-type: none"> Demonstrate knowledge of the connection between milk constituents, syneresis and moisture control in cheese curd. 	3
	<ul style="list-style-type: none"> Coagulate a dairy mixture for the manufacturing of a fermented dairy product. 	5
	<ul style="list-style-type: none"> Evaluate the compositional and sensory quality of cottage cheese products. 	5
Choose at least one of the following compulsory electives:		
Level 4	<ul style="list-style-type: none"> Manufacture chunky cottage cheese from coagulated milk. 	20
	<ul style="list-style-type: none"> Manufacture smooth cottage cheese (Quark) from coagulated milk. 	10
		Total 53
Choice Electives		
Level 2	<ul style="list-style-type: none"> Mix or blend food raw materials for processing using automated equipment (To be submitted by the Food SGB). 	4
	<ul style="list-style-type: none"> Collate and shrink-wrap packaged products using automated wrapping equipment. 	4
Level 3	<ul style="list-style-type: none"> Clarify or bacto-fuge milk by centrifugal force. 	5
Level 4	<ul style="list-style-type: none"> Prepare a bulk starter culture for the manufacturing of fermented dairy products or cheese. 	8
GRAND TOTAL		140

Dried Dairy Products and Dairy Related Products manufacturing

		Credits
Compulsory Electives		
Level 3	<ul style="list-style-type: none"> Evaluate the acceptability of raw milk in a silo for further processing. 	5
	<ul style="list-style-type: none"> Control lactose crystallisation in sweetened condensed milk or concentrated whey. 	8
Level 4	<ul style="list-style-type: none"> Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products. 	8
	<ul style="list-style-type: none"> Demonstrate knowledge of the functional components of milk. 	7
	<ul style="list-style-type: none"> Evaporate a liquid food product using a falling or rising film evaporator. 	20
	<ul style="list-style-type: none"> Evaluate the compositional and sensory quality of dried dairy products. 	5
Choose at least one of the following compulsory electives:		
Level 4	<ul style="list-style-type: none"> Manufacture a spray dried dairy powder from evaporated milk or an evaporated dairy mixture. 	30
	<ul style="list-style-type: none"> Manufacture a dairy powder by means of a roller dryer. 	30
	<ul style="list-style-type: none"> Manufacture instant milk powder by means of a spray dryer. 	30
Choose at least one of the following compulsory electives:		
Level 1	<ul style="list-style-type: none"> Bulk pack dry food products in bags. 	2
Level 2	<ul style="list-style-type: none"> Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food products. 	10
		Total 85
Choice Electives		
Level 2	<ul style="list-style-type: none"> Collate and shrink-wrap packaged products using automated wrapping equipment. 	4
GRAND TOTAL		172

Fermented Dairy Products manufacturing

		Credits
Compulsory Electives		
Level 2	<ul style="list-style-type: none"> Operate and control the filling and closing of glass or rigid plastic containers for food products. 	10
Level 3	<ul style="list-style-type: none"> Evaluate the acceptability of raw milk in a silo for further processing. 	5
Level 4	<ul style="list-style-type: none"> Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products. 	8
	<ul style="list-style-type: none"> Demonstrate knowledge of the functional components of milk. 	7
	<ul style="list-style-type: none"> Coagulate a dairy mixture for the manufacturing of a fermented dairy product. 	5
	<ul style="list-style-type: none"> Manufacture yoghurt and another fermented dairy product. 	15
	<ul style="list-style-type: none"> Evaluate the compositional and sensory quality of fermented dairy products. 	6
		Total 56
Choice Electives		
Level 2	<ul style="list-style-type: none"> Mix or blend food raw materials for processing using automated equipment (To be submitted by the Food SGB). 	4
	<ul style="list-style-type: none"> Collate and shrink-wrap packaged products using automated wrapping equipment. 	4
Level 4	<ul style="list-style-type: none"> Prepare a bulk starter culture for the production of fermented dairy products. 	8
GRAND TOTAL		143

Frozen Dairy Ice Cream and Frozen Ice Cream Related Products manufacturing

		Credits
Compulsory Electives		
Level 3	<ul style="list-style-type: none"> Evaluate the acceptability of raw milk in a silo for further processing. 	5
	<ul style="list-style-type: none"> Freeze or chill a food product (To be submitted by the Food SGB). 	8
Level 4	<ul style="list-style-type: none"> Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products. 	8
	<ul style="list-style-type: none"> Demonstrate knowledge of the functional components of milk. 	7
	<ul style="list-style-type: none"> Manufacture a frozen dairy ice cream or ice cream related product. 	15
	<ul style="list-style-type: none"> Evaluate the compositional and sensory quality of frozen dairy ice cream or ice cream related products. 	5
For frozen yoghurt manufacturing, the following unit standard are both compulsory:		
Level 4	<ul style="list-style-type: none"> Coagulate a dairy mixture for the manufacturing of a fermented dairy product. 	5
	<ul style="list-style-type: none"> Manufacture yoghurt and another fermented dairy product. 	15
Choose at least one of the following compulsory unit standards:		
Level 2	<ul style="list-style-type: none"> Operate and control the wrapping and sealing of individual food product units. 	3
	<ul style="list-style-type: none"> Operate and control the filling and closing of glass or rigid plastic containers for food products. 	10
		Total 51
Choice Electives		
Level 2	<ul style="list-style-type: none"> Mix or blend food raw materials for processing using automated equipment (To be submitted by the Food SGB). 	4
	<ul style="list-style-type: none"> Collate and shrink-wrap packaged products using automated wrapping equipment. 	4
Level 3	<ul style="list-style-type: none"> Enrobe confectionery products (To be submitted by the Food SGB). 	8
	<ul style="list-style-type: none"> Mould a frozen dairy ice cream or ice cream related product. 	7
	<ul style="list-style-type: none"> Age and freeze a dairy ice cream or ice cream related mixture using a continuous freezer. 	8
Level 4	<ul style="list-style-type: none"> Aerate a frozen dairy ice cream or ice cream related product. 	6
	<ul style="list-style-type: none"> Manufacture wafer products (To be submitted by the Food SGB). 	12
	<ul style="list-style-type: none"> Prepare a bulk starter culture for the manufacturing of fermented dairy products or cheese. 	8
GRAND TOTAL		138

Liquid Long Life Dairy products manufacturing

		Credits
Compulsory Electives		
Level 3	<ul style="list-style-type: none">Evaluate the acceptability of raw milk in a silo for further processing.	5
Level 4	<ul style="list-style-type: none">Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products.Demonstrate knowledge of the functional components of milk.Evaluate the compositional and sensory quality of liquid long life dairy products.	8
		7
		5
Choose at least one of the following compulsory electives:		
Level 3	<ul style="list-style-type: none">Sterilise a food product using retorting equipment (To be submitted by the Food SGB).	12
Level 4	<ul style="list-style-type: none">Manufacture a UHT product.Sterilise a liquid dairy product in a steri-tower.	12
		12
Choose at least one of the following compulsory electives:		
Level 2	<ul style="list-style-type: none">Operate and control the filling and closing of glass or rigid plastic containers for food products.	10
Level 3	<ul style="list-style-type: none">Operate and control the aseptic forming, filling, and sealing of containers for food products.	18
		Total 47
Choice Electives		
Level 2	<ul style="list-style-type: none">Mix or blend food raw materials for processing using automated equipment (To be submitted by the Food SGB).Collate and shrink-wrap packaged products using automated wrapping equipment.	4
Level 3	<ul style="list-style-type: none">Evaluate the efficiency of homogenisation of a liquid dairy product as indicated by the homogenisation index.	4
		2
GRAND TOTAL		134

Sweetened Condensed Milk manufacturing

		Credits
Compulsory Electives		
Level 2	<ul style="list-style-type: none"> Operate and control the filling and seaming of cans for food products. 	12
Level 3	<ul style="list-style-type: none"> Evaluate the acceptability of raw milk in a silo for further processing. Control lactose crystallisation in sweetened condensed milk or concentrated whey. 	5 8
Level 4	<ul style="list-style-type: none"> Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products. Demonstrate knowledge of the functional components of milk. Evaporate a liquid food product using a falling or rising film evaporator. Evaluate the compositional and sensory quality of condensed milk products. 	8 7 20 5
		Total 65
Choice Electives		
Level 2	<ul style="list-style-type: none"> Mix or blend food raw materials for processing using automated equipment (To be submitted by the Food SGB). Collate and shrink-wrap packaged products using automated wrapping equipment. 	4 4
Level 3	<ul style="list-style-type: none"> Evaluate the efficiency of homogenisation of a liquid dairy product as indicated by the homogenisation index. 	2
GRAND TOTAL		152

Process Cheese manufacturing

		Credits
Compulsory Electives		
Level 2	<ul style="list-style-type: none"> Prepare a process cheese mixture. 	3
Level 4	<ul style="list-style-type: none"> Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products. 	8
	<ul style="list-style-type: none"> Demonstrate knowledge of the functional components of milk. 	7
	<ul style="list-style-type: none"> Manufacture process cheese from a formulated process cheese mixture. 	20
	<ul style="list-style-type: none"> Evaluate the compositional and sensory quality of process cheese. 	5
Choose at least one of the following compulsory electives:		
Level 2	<ul style="list-style-type: none"> Operate and control the filling and closing of glass or rigid plastic containers for food products. 	10
	<ul style="list-style-type: none"> Operate and control the individual wrapping of process cheese portions. 	12
		Total 53
Choice Electives		
Level 2	<ul style="list-style-type: none"> Mix or blend food raw materials for processing using automated equipment (To be submitted by the Food SGB). 	4
	<ul style="list-style-type: none"> Collate and shrink-wrap packaged products using automated wrapping equipment. 	4
GRAND TOTAL		140

APPLICABLE TO ALL THE SPECIALISATION DOMAINS:**UNIT STANDARDS AT NQF LEVEL 3**

- Title 1: Monitor quality control practices in a food manufacturing environment (To be submitted by the Food SGB).
- Title 2: Demonstrate an understanding of food safety practices and procedures in a food manufacturing environment (To be submitted by the Food SGB).
- Title 3: Apply first line maintenance on food processing equipment
- Title 4: Produce word processing documents for business (Registered).
- Title 5: Produce presentation documents for business (Registered).
- Title 6: Produce and use spread sheets for business (Registered).

UNIT STANDARDS AT NQF LEVEL 4

- Title 1: Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products.
- Title 2: Demonstrate knowledge of the functional components of milk.
- Title 3: Demonstrate knowledge of industrial relationship principles and legislation in a food processing environment.
- Title 4: Demonstrate knowledge of financial principles related to processing and manufacturing processes.
- Title 5: Language unit standards (Interim registered unit standards).
- Title 6: Mathematics unit standards (Interim registered unit standards).

UNIT STANDARDS AT NQF LEVEL 5

- Title 1: Implement and maintain food or beverage production plans (To be submitted by the Food SGB).

BUTTER AND DAIRY BASED SPREADS

UNIT STANDARDS AT NQF LEVEL 2

Title 1: Operate and control the wrapping of a brick shaped food product.

UNIT STANDARDS AT NQF LEVEL 3

Title 1: Evaluate the acceptability of raw milk in a silo for further processing.

UNIT STANDARDS AT NQF LEVEL 4

Title 1: Manufacture butter with a continuous butter making machine.

Title 2: Evaluate the compositional and sensory quality of butter.

Title 3: Manufacture butter by means of a batch churn.

RIPENED CHEESE

UNIT STANDARDS AT NQF LEVEL 1

Title 1: Paint and wax cheese.

Title 2: Pack a food product under vacuum.

UNIT STANDARDS AT NQF LEVEL 3

Title 1: Clarify or bacto-fuge milk by centrifugal force.

Title 2: Evaluate the acceptability of raw milk in a silo for further processing.

UNIT STANDARDS AT NQF LEVEL 4

Title 1: Demonstrate knowledge of the connection between milk constituents, syneresis and moisture control in cheese curd.

Title 2: Coagulate milk for cheese manufacturing.

Title 3: Prepare a bulk starter culture for the manufacturing of fermented dairy products or cheese.

Title 4: Manufacture a green Cheddar type cheese from coagulated milk.

Title 5: Manufacture a green Gouda or Grana type cheese from coagulated milk.

Title 6: Manufacture a green Mozzarella type cheese from coagulated milk.

Title 7: Evaluate the compositional and sensory quality of cheese.

COTTAGE CHEESE

UNIT STANDARDS AT NQF LEVEL 2

Title 1: Operate and control the filling and closing of glass or rigid plastic containers for food products.

Title 2: Collate and shrink-wrap packaged products using automated wrapping equipment.

Title 3: Mix or blend food raw materials for processing using automated equipment (To be submitted by the Food SGB).

UNIT STANDARDS AT NQF LEVEL 3

Title 1: Clarify or bacto-fuge milk by centrifugal force.

Title 2: Evaluate the acceptability of raw milk in a silo for further processing.

UNIT STANDARDS AT NQF LEVEL 4

Title 1: Demonstrate knowledge of the connection between milk constituents, syneresis and moisture control in cheese curd.

Title 2: Coagulate a dairy mixture for the manufacturing of a fermented dairy product.

Title 3: Prepare a bulk starter culture for the manufacturing of fermented dairy products or cheese.

Title 4: Manufacture chunky cottage cheese from coagulated milk.

Title 5: Manufacture smooth cottage cheese (Quark) from coagulated milk.

Title 6: Evaluate the compositional and sensory quality of cottage cheese products.

DRIED DAIRY PRODUCTS

UNIT STANDARDS AT NQF LEVEL 1

Title 1: Bulk pack dry food products in bags.

UNIT STANDARDS AT NQF LEVEL 2

Title 1: Collate and shrink-wrap packaged products using automated wrapping equipment.

Title 2: Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food products.

UNIT STANDARDS AT NQF LEVEL 3

Title 1: Control lactose crystallisation in sweetened condensed milk or concentrated whey.

Title 2: Evaluate the acceptability of raw milk in a silo for further processing.

UNIT STANDARDS AT NQF LEVEL 4

Title 1: Evaporate a liquid food product using a falling or rising film evaporator.

Title 2: Manufacture a spray dried dairy powder from evaporated milk or an evaporated dairy mixture.

Title 3: Manufacture a dairy powder by means of a roller dryer.

Title 4: Manufacture instant milk powder by means of a spray dryer.

Title 5: Evaluate the compositional and sensory quality of dried dairy products.

FERMENTED DAIRY PRODUCTS

UNIT STANDARDS AT NQF LEVEL 2

Title 1: Operate and control the filling and closing of glass or rigid plastic containers for food products.

Title 2: Collate and shrink-wrap packaged products using automated wrapping equipment.

Title 3: Mix or blend food raw materials for processing using automated equipment. (To be submitted by the Food SGB).

UNIT STANDARDS AT NQF LEVEL 3

Title 1: Evaluate the acceptability of raw milk in a silo for further processing.

UNIT STANDARDS AT NQF LEVEL 4

Title 1: Coagulate a dairy mixture for the manufacturing of a fermented dairy product.

Title 2: Prepare a bulk starter culture for the manufacturing of fermented dairy products or cheese.

Title 3: Manufacture yoghurt and another fermented dairy product.

Title 4: Evaluate the compositional and sensory quality of fermented dairy products.

FROZEN DAIRY ICE CREAM AND FROZEN ICE CREAM RELATED PRODUCTS**UNIT STANDARDS AT NQF LEVEL 2**

Title 1: Operate and control the wrapping and sealing of individual food product units.

Title 2: Operate and control the filling and closing of glass or rigid plastic containers for food products.

Title 3: Collate and shrink-wrap packaged products using automated wrapping equipment.

Title 4: Mix or blend food raw materials for processing using automated equipment. (To be submitted by the Food SGB).

UNIT STANDARDS AT NQF LEVEL 3

Title 1: Mould a frozen dairy ice cream or ice cream related product.

Title 2: Age and freeze a dairy ice cream or ice cream related mixture using a continuous freezer.

Title 3: Evaluate the acceptability of raw milk in a silo for further processing.

Title 4: Enrobe confectionery products (To be submitted by the Food SGB).

Title 5: Freeze or chill a food product (To be submitted by the Food SGB).

UNIT STANDARDS AT NQF LEVEL 4

- Title 1: Coagulate a dairy mixture for the manufacturing of a fermented dairy product.
- Title 2: Prepare a bulk starter culture for the manufacturing of fermented dairy products or cheese.
- Title 3: Manufacture yoghurt and another fermented dairy product.
- Title 4: Evaluate the compositional and sensory quality of frozen dairy ice cream or ice cream related products.
- Title 5: Manufacture a frozen dairy ice cream or ice cream related products.
- Title 6: Aerate a frozen dairy ice cream or ice cream related product.
- Title 7: Manufacture wafer products (To be submitted by the Food SGB).

LIQUID LONG LIFE DAIRY PRODUCTS**UNIT STANDARDS AT NQF LEVEL 2**

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

UNIT STANDARDS AT NQF LEVEL 3

- Title 1: Evaluate the acceptability of raw milk in a silo for further processing.
- Title 2: Evaluate the efficiency of homogenisation of a liquid dairy product, as indicated by the homogenisation index.
- Title 3: Operate and control the aseptic forming, filling, and sealing of containers for food products.
- Title 4: Sterilise a food product using retorting equipment (To be submitted by the Food SGB).

UNIT STANDARDS AT NQF LEVEL 4

- Title 1: Evaluate the compositional and sensory quality of liquid long life dairy products.
- Title 2: Manufacture a UHT product.
- Title 3: Sterilise a liquid dairy product in a steri-tower.

SWEETENED CONDENSED MILK**UNIT STANDARDS AT NQF LEVEL 2**

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

UNIT STANDARDS AT NQF LEVEL 3

- Title 1: Evaluate the acceptability of raw milk in a silo for further processing.
- Title 2: Control lactose crystallisation in sweetened condensed milk or concentrated whey.
- Title 3: Evaluate the efficiency of homogenisation of a liquid dairy product, as indicated by the homogenisation index.

UNIT STANDARDS AT NQF LEVEL 4

- Title 1: Evaporate a liquid food product using a falling or rising film evaporator.
- Title 2: Evaluate the compositional and sensory quality of condensed milk products.

PROCESS CHEESE**UNIT STANDARDS AT NQF LEVEL 2**

- Title 1: Prepare a process cheese mixture.
- Title 2: Operate and control the filling and closing of glass or rigid plastic containers for food products.
- Title 3: Operate and control the individual wrapping of process cheese portions.

- Title 4: Collate and shrink-wrap packaged products using automated wrapping equipment.
- Title 5: Mix or blend food raw materials for processing using automated equipment. (To be submitted by the Food SGB).

UNIT STANDARDS AT NQF LEVEL 4

- Title 1: Manufacture process cheese from a formulated process cheese mixture.
- Title 2: Evaluate the compositional and sensory quality of process cheese.

APPLICABLE TO ALL THE SPECIALISATION DOMAINS:

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4

- 1. TITLE: DEMONSTRATE KNOWLEDGE OF THE SIGNIFICANCE OF MICRO-ORGANISMS IN THE MANUFACTURING OF DIARY PRODUCTS.**
- Specific outcome 1.1: Demonstrate knowledge of the classification and characteristics of micro-organisms found in the dairy environment.
- Specific outcome 1.2: Demonstrate knowledge of biochemical and enzymatic systems due to micro-organisms in milk and dairy products, and its implication on dairy production.
- Specific outcome 1.3: Demonstrate knowledge of micro-organisms as indicators of dairy quality standards and criteria.
- Specific outcome 1.4: Demonstrate knowledge of the implication of pathogenic micro-organisms in the dairy manufacturing environment.
- 2. TITLE: DEMONSTRATE KNOWLEDGE OF THE FUNCTIONAL COMPONENTS OF MILK.**
- Specific outcome 2.1: Demonstrate knowledge of the chemical composition of milk proteins, fat and lactose.
- Specific outcome 2.2: Demonstrate knowledge of the nutritional and health aspects of milk proteins, fat and lactose.
- Specific outcome 2.3: Demonstrate knowledge of the functional properties of milk proteins, fat and lactose.
- Specific outcome 2.4: Demonstrate knowledge of the changes in milk proteins, fat and lactose that influence the quality of dairy products.

BUTTER AND DAIRY BASED SPREADS

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2

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| 1. TITLE: | OPERATE AND CONTROL THE WRAPPING OF A BRICK SHAPED FOOD PRODUCT. |
| Specific outcome 1.1: | Demonstrate knowledge of wrapping a brick shaped food product. |
| Specific outcome 1.2: | Prepare for wrapping a brick shaped food product. |
| Specific outcome 1.3: | Wrap a brick shaped food product. |
| Specific outcome 1.4: | Perform end of wrapping procedures. |

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3

- | | |
|-----------------------|---|
| 1. TITLE: | EVALUATE THE ACCEPTABILITY OF RAW MILK IN A SILO FOR FURTHER PROCESSING. |
| Specific outcome 1.1: | Demonstrate knowledge of milk quality tests. |
| Specific outcome 1.2: | Prepare for milk quality tests. |
| Specific outcome 1.3: | Determine the quality of raw milk. |
| Specific outcome 1.4: | Report on the quality of raw milk in terms of its acceptability for further processing. |

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4

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| 1. TITLE: | MANUFACTURE BUTTER WITH A CONTINUOUS BUTTER MAKING MACHINE. |
| Specific outcome 1.1: | Select raw materials for butter making. |
| Specific outcome 1.2: | Prepare cream for butter making. |
| Specific outcome 1.3: | Prepare to manufacture fresh butter with a continuous butter making machine. |
| Specific outcome 1.4: | Manufacture fresh butter with a continuous butter making machine. |
| Specific outcome 1.5: | Perform end of butter manufacturing procedures. |

- 2. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF BUTTER.**
- Specific outcome 2.1: Demonstrate knowledge of the compositional quality of butter.
- Specific outcome 2.2: Demonstrate knowledge of the sensory quality of butter.
- Specific outcome 2.3: Determine the compositional and sensory quality of butter.
- Specific outcome 2.4: Report on the compositional and sensory quality of butter.
- 3. TITLE: MANUFACTURE BUTTER BY MEANS OF A BATCH CHURN.**
- Specific outcome 3.1: Select raw materials for butter making.
- Specific outcome 3.2: Prepare cream for butter making.
- Specific outcome 3.3: Prepare to manufacture fresh butter with a batch churn.
- Specific outcome 3.4: Manufacture fresh butter with a batch churn.
- Specific outcome 3.5: Perform end of butter manufacturing procedures.

RIPENED CHEESE

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 1

- 1. TITLE: PAINT AND WAX CHEESE.**
- Specific outcome 1.1: Demonstrate knowledge of painting and waxing of cheese.
- Specific outcome 1.2: Prepare to paint and wax cheese.
- Specific outcome 1.3: Paint and wax cheese.
- Specific outcome 1.4: Perform end of painting and waxing duties.
- 2. TITLE: PACK A FOOD PRODUCT UNDER VACUUM.**
- Specific outcome 2.1: Demonstrate knowledge of vacuum packaging of food products.
- Specific outcome 2.2: Prepare to pack a food product under vacuum.
- Specific outcome 2.3: Pack a food product under vacuum.
- Specific outcome 2.4: Perform end of packaging duties.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3

- 1. TITLE:** **CLARIFY OR BACTOFUGE MILK BY CENTRIFUGAL FORCE.**
 - Specific outcome 1.1: Demonstrate knowledge of clarification or bactofugation of milk.
 - Specific outcome 1.2: Prepare to clarify or bactofuge milk.
 - Specific outcome 1.3: Clarify or bactofuge milk.
 - Specific outcome 1.4: Perform end of clarification or bactofugation procedures.
- 2. TITLE:** **EVALUATE THE ACCEPTABILITY OF RAW MILK IN A SILO FOR FURTHER PROCESSING.**
 - Specific outcome 2.1: Demonstrate knowledge of milk quality tests.
 - Specific outcome 2.2: Prepare for milk quality tests.
 - Specific outcome 2.3: Determine the quality of raw milk.
 - Specific outcome 2.4: Report on the quality of raw milk in terms of its acceptability for further processing.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4

- 1. TITLE:** **DEMONSTRATE KNOWLEDGE OF THE CONNECTION BETWEEN MILK CONSTITUENTS, SYNERESIS AND MOISTURE CONTROL IN CHEESE CURD.**
 - Specific outcome 1.1: Demonstrate knowledge of the role of milk constituents during cheese manufacturing.
 - Specific outcome 1.2: Demonstrate knowledge of syneresis in cheese curd.
 - Specific outcome 1.3: Demonstrate knowledge of the mineral content of cheese curd.
 - Specific outcome 1.4: Demonstrate knowledge of moisture control in cheese curd.
- 2. TITLE:** **COAGULATE MILK FOR CHEESE MANUFACTURING.**
 - Specific outcome 2.1: Demonstrate knowledge of starter cultures for cheese manufacturing.
 - Specific outcome 2.2: Demonstrate knowledge of the mechanism of milk coagulation during cheese manufacturing.

Specific outcome 2.3: Demonstrate knowledge of the methods of milk coagulation for cheese manufacturing.

Specific outcome 2.4: Coagulate milk for the manufacturing of cheese.

3. TITLE: PREPARE A BULK STARTER CULTURE FOR THE MANUFACTURING OF FERMENTED DAIRY PRODUCTS OR CHEESE.

Specific outcome 3.1: Demonstrate knowledge of starter culture preparation.

Specific outcome 3.2: Prepare for starter culture preparation.

Specific outcome 3.3: Prepare a bulk starter culture from a stock culture.

Specific outcome 3.4: Perform end of starter preparation duties.

4. TITLE: MANUFACTURE A GREEN CHEDDAR TYPE CHEESE FROM COAGULATED MILK.

Specific outcome 4.1: Demonstrate knowledge of moisture control in Cheddar type cheese curd.

Specific outcome 4.2: Control the moisture content in Cheddar type cheese curd.

Specific outcome 4.3: Handle Cheddar type cheese curd before pressing.

Specific outcome 4.4: Press a green Cheddar type cheese.

Specific outcome 4.5: Monitor and control the manufacturing of a green Cheddar type cheese.

5. TITLE: MANUFACTURE A GREEN GOUDA OR GRANA TYPE CHEESE FROM COAGULATED MILK.

Specific outcome 5.1: Demonstrate knowledge of moisture control in Gouda or Grana type cheese curd.

Specific outcome 5.2: Control the moisture content in Gouda or Grana type cheese curd.

Specific outcome 5.3: Handle curd for the manufacturing of Gouda or Grana type cheese.

Specific outcome 5.4: Monitor and control the manufacturing of a green Gouda or Grana type cheese.

- 6. TITLE: MANUFACTURE A GREEN MOZZARELLA TYPE CHEESE FROM COAGULATED MILK.**
- Specific outcome 6.1: Demonstrate knowledge of moisture control in Mozzarella type cheese curd.
- Specific outcome 6.2: Control the moisture content in Mozzarella type cheese curd.
- Specific outcome 6.3: Handle curd for the manufacturing of Mozzarella type cheese.
- Specific outcome 6.4: Monitor and control the manufacturing of green Mozzarella type cheese.
- 7. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF CHEESE.**
- Specific outcome 7.1: Demonstrate knowledge of the compositional quality of cheese.
- Specific outcome 7.2: Demonstrate knowledge of the sensory quality of cheese.
- Specific outcome 7.3: Determine the compositional and sensory quality of cheese.
- Specific outcome 7.4: Report on the compositional and sensory quality of cheese.

COTTAGE CHEESE

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2

- 1. TITLE: OPERATE AND CONTROL THE FILLING AND CLOSING OF GLASS OR RIGID PLASTIC CONTAINERS FOR FOOD PRODUCTS.**
- Specific outcome 1.1: Demonstrate knowledge of filling and closing of glass or rigid plastic containers.
- Specific outcome 1.2: Prepare to fill and close glass or rigid plastic containers.
- Specific outcome 1.3: Fill and close glass or rigid plastic containers.
- Specific outcome 1.4: Perform end of filling and closing procedures.

2. TITLE: COLLATE AND SHRINK-WRAP PACKAGED PRODUCTS USING AUTOMATED WRAPPING EQUIPMENT.

Specific outcome 2.1: Demonstrate knowledge of collating and shrink-wrapping.

Specific outcome 2.2: Prepare to collate and shrink-wrap packaged products.

Specific outcome 2.3: Collate and shrink-wrap packaged products.

Specific outcome 2.4: Perform end of shrink-wrapping procedures.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3

1. TITLE: CLARIFY OR BACTOFUGE MILK BY CENTRIFUGAL FORCE.

Specific outcome 1.1: Demonstrate knowledge of clarification or bactofugation of milk.

Specific outcome 1.2: Prepare to clarify or bactofuge milk.

Specific outcome 1.3: Clarify or bactofuge milk.

Specific outcome 1.4: Perform end of clarification or bactofugation procedures.

2. TITLE: EVALUATE THE ACCEPTABILITY OF RAW MILK IN A SILO FOR FURTHER PROCESSING.

Specific outcome 2.1: Demonstrate knowledge of milk quality tests.

Specific outcome 2.2: Prepare for milk quality tests.

Specific outcome 2.3: Determine the quality of raw milk.

Specific outcome 2.4: Report on the quality of raw milk in terms of its acceptability for further processing.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4

1. TITLE: DEMONSTRATE KNOWLEDGE OF THE CONNECTION BETWEEN MILK CONSTITUENTS, SYNERESIS AND MOISTURE CONTROL IN CHEESE CURD.

Specific outcome 1.1: Demonstrate knowledge of the role of milk constituents during cheese manufacturing.

Specific outcome 1.2: Demonstrate knowledge of syneresis in cheese curd.

Specific outcome 1.3: Demonstrate knowledge of the mineral content of cheese curd.

Specific outcome 1.4: Demonstrate knowledge of moisture control in cheese curd.

2. TITLE: COAGULATE A DAIRY MIXTURE FOR THE MANUFACTURING OF A FERMENTED DAIRY PRODUCT.

Specific outcome 2.1: Demonstrate knowledge of starter cultures for fermented dairy products manufacturing.

Specific outcome 2.2: Demonstrate knowledge of the mechanism of coagulation during fermented dairy product manufacturing.

Specific outcome 2.3: Demonstrate knowledge of the methods of coagulation for fermented dairy product manufacturing.

Specific outcome 2.4: Coagulate a dairy mixture for fermented dairy product manufacturing.

3. TITLE: PREPARE A BULK STARTER CULTURE FOR THE MANUFACTURING OF FERMENTED DAIRY PRODUCTS OR CHEESE.

Specific outcome 3.1: Demonstrate knowledge of starter culture preparation.

Specific outcome 3.2: Prepare for starter culture preparation.

Specific outcome 3.3: Prepare a bulk starter culture from a stock culture.

Specific outcome 3.4: Perform end of starter preparation duties.

4. TITLE: MANUFACTURE CHUNKY COTTAGE CHEESE FROM COAGULATED MILK.

Specific outcome 4.1: Demonstrate knowledge of moisture control in chunky cottage cheese curd.

Specific outcome 4.2: Control moisture content in chunky cottage cheese curd.

Specific outcome 4.3: Handle chunky cottage cheese before packaging into containers.

Specific outcome 4.4: Monitor and control the manufacturing of chunky cottage cheese.

5. TITLE:

MANUFACTURE SMOOTH COTTAGE CHEESE (QUARK) FROM COAGULATED MILK.
- Specific outcome 5.1:

Demonstrate knowledge of moisture and total solids control in smooth cottage cheese (Quark) curd.
- Specific outcome 5.2:

Control the moisture and total solids content in smooth cottage cheese (Quark) curd.
- Specific outcome 5.3:

Handle smooth cottage cheese (Quark) before packaging into containers.
- Specific outcome 5.4:

Monitor and control the manufacturing of smooth cottage cheese (Quark).
6. TITLE:

EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF COTTAGE CHEESE PRODUCTS.
- Specific outcome 6.1:

Demonstrate knowledge of the compositional quality of cottage cheese.
- Specific outcome 6.2:

Demonstrate knowledge of the sensory quality of cottage cheese.
- Specific outcome 6.3:

Determine the compositional and sensory quality of cottage cheese.
- Specific outcome 6.4:

Report on the compositional and sensory quality of cottage cheese.

DRIED DAIRY PRODUCTS

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 1

1. TITLE:

BULK PACK DRY FOOD PRODUCTS IN BAGS.
- Specific outcome 1.1:

Demonstrate knowledge of bulk packaging of dry food products in bags.
- Specific outcome 1.2:

Prepare to bag dry food products.
- Specific outcome 1.3:

Bag a dry food product.
- Specific outcome 1.4:

Perform end of bagging procedures.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2**1. TITLE: COLLATE AND SHRINK-WRAP PACKAGED PRODUCTS USING AUTOMATED WRAPPING EQUIPMENT.**

- Specific outcome 1.1: Demonstrate knowledge of collating and shrink-wrapping.
- Specific outcome 1.2: Prepare to collate and shrink-wrap packaged products.
- Specific outcome 1.3: Collate and shrink-wrap packaged products.
- Specific outcome 1.4: Perform end of shrink-wrapping procedures.

2. TITLE: OPERATE AND CONTROL THE FORMING, FILLING AND HERMETIC SEALING OF PLASTIC SACHETS OR BAGS FOR FOOD PRODUCTS.

- Specific outcome 2.1: Demonstrate knowledge of packaging of food products in plastic sachets or bags.
- Specific outcome 2.2: Prepare to pack a food product in plastic sachets or bags.
- Specific outcome 2.3: Pack a food product hermetically in plastic sachets or bags.
- Specific outcome 2.4: Perform end of packaging procedures.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3**1. TITLE: CONTROL LACTOSE CRYSTALLISATION IN SWEETENED CONDENSED MILK OR CONCENTRATED WHEY.**

- Specific outcome 1.1: Demonstrate knowledge of controlled lactose crystallisation in sweetened condensed milk or concentrated whey.
- Specific outcome 1.2: Prepare to crystallise sweetened condensed milk or concentrated whey.
- Specific outcome 1.3: Crystallise sweetened condensed milk or concentrated whey.
- Specific outcome 1.4: Perform end of crystallisation procedures.

2. TITLE:

EVALUATE THE ACCEPTABILITY OF RAW MILK IN A SILO FOR FURTHER PROCESSING.
- Specific outcome 2.1:

Demonstrate knowledge of milk quality tests.
- Specific outcome 2.2:

Prepare for milk quality tests.
- Specific outcome 2.3:

Determine the quality of raw milk.
- Specific outcome 2.4:

Report on the quality of raw milk in terms of its acceptability for further processing.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4

1. TITLE:

EVAPORATE A LIQUID FOOD PRODUCT USING A FALLING OR RISING FILM EVAPORATOR.
- Specific outcome 1.1:

Demonstrate knowledge of evaporation.
- Specific outcome 1.2:

Prepare to evaporate a liquid food product.
- Specific outcome 1.3:

Evaporate a liquid food product in a falling or rising film evaporator.
- Specific outcome 1.4:

Perform end of evaporation procedures.
2. TITLE:

MANUFACTURE A SPRAY DRIED DAIRY POWDER FROM EVAPORATED MILK OR AN EVAPORATED DAIRY MIXTURE.
- Specific outcome 2.1:

Demonstrate knowledge of the manufacturing of a spray dried dairy powder.
- Specific outcome 2.2:

Prepare to manufacture a dairy powder by means of a spray dryer.
- Specific outcome 2.3:

Dry evaporated milk or an evaporated dairy mixture by means of a spray dryer.
- Specific outcome 2.4:

Perform end of drying procedures.
3. TITLE:

MANUFACTURE A DAIRY POWDER BY MEANS OF A ROLLER DRYER.
- Specific outcome 3.1:

Demonstrate knowledge of the manufacturing of a dairy powder by means of a roller dryer.
- Specific outcome 3.2:

Prepare to manufacture a dairy powder by means of a roller dryer.

- Specific outcome 3.3: Dry milk or a dairy mixture by means of a roller dryer.
- Specific outcome 3.4: Perform end of drying procedures.

4. TITLE: MANUFACTURE INSTANT MILK POWDER BY MEANS OF A SPRAY DRYER.

- Specific outcome 4.1: Demonstrate knowledge of the manufacturing of instant milk powder by means of a spray dryer.
- Specific outcome 4.2: Prepare to manufacture instant milk powder by means of a spray dryer.
- Specific outcome 4.3: Dry evaporated milk by means of a spray dryer.
- Specific outcome 4.4: Perform end of drying procedures.

5. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF DRIED DAIRY PRODUCTS.

- Specific outcome 5.1: Demonstrate knowledge of the compositional quality of dried dairy products.
- Specific outcome 5.2: Demonstrate knowledge of the sensory quality of dried dairy products.
- Specific outcome 5.3: Determine the compositional and sensory quality of a dried dairy product.
- Specific outcome 5.4: Report on the compositional and sensory quality of the dried dairy product.

FERMENTED DAIRY PRODUCTS

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2

1. TITLE: OPERATE AND CONTROL THE FILLING AND CLOSING OF GLASS OR RIGID PLASTIC CONTAINERS FOR FOOD PRODUCTS.

- Specific outcome 1.1: Demonstrate knowledge of filling and closing of glass or rigid plastic containers.
- Specific outcome 1.2: Prepare to fill and close glass or rigid plastic containers.

Specific outcome 1.3: Fill and close glass or rigid plastic containers.

Specific outcome 1.4: Perform end of filling and closing procedures.

2. TITLE: COLLATE AND SHRINK-WRAP PACKAGED PRODUCTS USING AUTOMATED WRAPPING EQUIPMENT.

Specific outcome 2.1: Demonstrate knowledge of collating and shrink-wrapping.

Specific outcome 2.2: Prepare to collate and shrink-wrap packaged products.

Specific outcome 2.3: Collate and shrink-wrap packaged products.

Specific outcome 2.4: Perform end of shrink-wrapping procedures.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3

1. TITLE: EVALUATE THE ACCEPTABILITY OF RAW MILK IN A SILO FOR FURTHER PROCESSING.

Specific outcome 1.1: Demonstrate knowledge of milk quality tests.

Specific outcome 1.2: Prepare for milk quality tests.

Specific outcome 1.3: Determine the quality of raw milk.

Specific outcome 1.4: Report on the quality of raw milk in terms of its acceptability for further processing.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4

1. TITLE: COAGULATE A DAIRY MIXTURE FOR THE MANUFACTURING OF A FERMENTED DAIRY PRODUCT.

Specific outcome 1.1: Demonstrate knowledge of starter cultures for fermented dairy products manufacturing.

Specific outcome 1.2: Demonstrate knowledge of the mechanism of coagulation during fermented dairy product manufacturing.

Specific outcome 1.3: Demonstrate knowledge of the methods of coagulation for fermented dairy product manufacturing.

Specific outcome 1.4: Coagulate a dairy mixture for fermented dairy product manufacturing.

2. TITLE: PREPARE A BULK STARTER CULTURE FOR THE MANUFACTURING OF FERMENTED DAIRY PRODUCTS OR CHEESE.

Specific outcome 2.1: Demonstrate knowledge of starter culture preparation.

Specific outcome 2.2: Prepare for starter culture preparation.

Specific outcome 2.3: Prepare a bulk starter culture from a stock culture.

Specific outcome 2.4: Perform end of starter preparation duties.

3. TITLE: MANUFACTURE YOGHURT AND ANOTHER FERMENTED DAIRY PRODUCT.

Specific outcome 3.1: Demonstrate knowledge of fermentation and coagulation.

Specific outcome 3.2: Demonstrate knowledge of post-fermentation and -coagulation processes.

Specific outcome 3.3: Coagulate a mixture intended for the manufacturing of a fermented dairy product.

Specific outcome 3.4: Monitor and control the coagulation of a fermented dairy product.

4. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF FERMENTED DAIRY PRODUCTS.

Specific outcome 4.1: Demonstrate knowledge of the compositional quality of fermented dairy products.

Specific outcome 4.2: Demonstrate knowledge of the sensory quality of fermented dairy products.

Specific outcome 4.3: Determine the compositional and sensory quality of a fermented dairy product.

Specific outcome 4.4: Report on the compositional and sensory quality of the fermented dairy product.

FROZEN DAIRY ICE CREAM AND FROZEN ICE CREAM RELATED PRODUCTS**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2**

- 1. TITLE: OPERATE AND CONTROL THE WRAPPING AND SEALING OF INDIVIDUAL FOOD PRODUCT UNITS.**
 - Specific outcome 1.1: Demonstrate knowledge of wrapping and sealing of a food product.
 - Specific outcome 1.2: Prepare for wrapping and sealing of a food product.
 - Specific outcome 1.3: Wrap and seal a food product.
 - Specific outcome 1.4: Perform end of wrapping and sealing procedures.
- 2. TITLE: OPERATE AND CONTROL THE FILLING AND CLOSING OF GLASS OR RIGID PLASTIC CONTAINERS FOR FOOD PRODUCTS.**
 - Specific outcome 2.1: Demonstrate knowledge of filling and closing of glass or rigid plastic containers.
 - Specific outcome 2.2: Prepare to fill and close glass or rigid plastic containers.
 - Specific outcome 2.3: Fill and close glass or rigid plastic containers.
 - Specific outcome 2.4: Perform end of filling and closing procedures.
- 3. TITLE: COLLATE AND SHRINK-WRAP PACKAGED PRODUCTS USING AUTOMATED WRAPPING EQUIPMENT.**
 - Specific outcome 3.1: Demonstrate knowledge of collating and shrink-wrapping.
 - Specific outcome 3.2: Prepare to collate and shrink-wrap packaged products.
 - Specific outcome 3.3: Collate and shrink-wrap packaged products.
 - Specific outcome 3.4: Perform end of shrink-wrapping procedures.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3**1. TITLE: MOULD A FROZEN DAIRY ICE CREAM OR ICE CREAM RELATED PRODUCT.**

- Specific outcome 1.1: Demonstrate knowledge of moulding frozen dairy ice cream or ice cream related.
- Specific outcome 1.2: Prepare for moulding a frozen dairy ice cream or ice cream related product.
- Specific outcome 1.3: Mould a frozen dairy ice cream or ice cream related product.
- Specific outcome 1.4: Perform end of moulding procedures.

2. TITLE: AGE AND FREEZE A DAIRY ICE CREAM OR ICE CREAM RELATED MIXTURE USING A CONTINUOUS FREEZER.

- Specific outcome 2.1: Demonstrate knowledge of ageing and freezing dairy ice cream or ice cream related mixtures by means of a continuous freezer.
- Specific outcome 2.2: Prepare for ageing and freezing a dairy ice cream or ice cream related mixture.
- Specific outcome 2.3: Age and freeze a dairy ice cream or ice cream related mixture.
- Specific outcome 2.4: Perform end of ageing and freezing procedures.

3. TITLE: EVALUATE THE ACCEPTABILITY OF RAW MILK IN A SILO FOR FURTHER PROCESSING.

- Specific outcome 3.1: Demonstrate knowledge of milk quality tests.
- Specific outcome 3.2: Prepare for milk quality tests.
- Specific outcome 3.3: Determine the quality of raw milk.
- Specific outcome 3.4: Report on the quality of raw milk in terms of its acceptability for further processing.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4**1. TITLE: COAGULATE A DAIRY MIXTURE FOR THE MANUFACTURING OF A FERMENTED DAIRY PRODUCT.**

- Specific outcome 1.1: Demonstrate knowledge of starter cultures for fermented dairy products manufacturing.
- Specific outcome 1.2: Demonstrate knowledge of the mechanism of coagulation during fermented dairy product manufacturing.
- Specific outcome 1.3: Demonstrate knowledge of the methods of coagulation for fermented dairy product manufacturing.
- Specific outcome 1.4: Coagulate a dairy mixture for fermented dairy product manufacturing.

2. TITLE: PREPARE A BULK STARTER CULTURE FOR THE MANUFACTURING OF FERMENTED DAIRY PRODUCTS OR CHEESE.

- Specific outcome 2.1: Demonstrate knowledge of starter culture preparation.
- Specific outcome 2.2: Prepare for starter culture preparation.
- Specific outcome 2.3: Prepare a bulk starter culture from a stock culture.
- Specific outcome 2.4: Perform end of starter preparation duties.

3. TITLE: MANUFACTURE YOGHURT AND ANOTHER FERMENTED DAIRY PRODUCT.

- Specific outcome 3.1: Demonstrate knowledge of fermentation and coagulation.
- Specific outcome 3.2: Demonstrate knowledge of post-fermentation and -coagulation processes.
- Specific outcome 3.3: Coagulate a mixture intended for the manufacturing of a fermented dairy product.
- Specific outcome 3.4: Monitor and control the coagulation of a fermented dairy product.

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4. **TITLE:** **EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF FROZEN DAIRY ICE CREAM OR ICE CREAM RELATED PRODUCTS.**
- Specific outcome 4.1: Demonstrate knowledge of the compositional quality of frozen dairy ice cream or ice cream related products.
- Specific outcome 4.2: Demonstrate knowledge of the sensory quality of frozen dairy ice cream or ice cream related products.
- Specific outcome 4.3: Determine the compositional and sensory quality of a frozen dairy ice cream or ice cream related product.
- Specific outcome 4.4: Report on the compositional and sensory quality of the frozen dairy ice cream or ice cream related product.
5. **TITLE:** **MANUFACTURE A FROZEN DAIRY ICE CREAM OR ICE CREAM RELATED PRODUCT.**
- Specific outcome 5.1: Demonstrate knowledge of the manufacturing of frozen dairy ice cream or ice cream related products.
- Specific outcome 5.2: Prepare to manufacture a frozen dairy ice cream or ice cream related product.
- Specific outcome 5.3: Manufacture a frozen dairy ice cream or ice cream related product prior to packaging.
- Specific outcome 5.4: Perform end of manufacturing procedures.
6. **TITLE:** **AERATE A FROZEN DAIRY ICE CREAM OR ICE CREAM RELATED PRODUCT.**
- Specific outcome 6.1: Demonstrate knowledge of aerating frozen dairy ice cream or ice cream related products.
- Specific outcome 6.2: Prepare to aerate a frozen dairy ice cream or ice cream related product.
- Specific outcome 6.3: Aerate a frozen dairy ice cream or ice cream related product.
- Specific outcome 6.4: Perform end-of-aerating procedures.

LIQUID LONG LIFE DAIRY PRODUCTS

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2

- 1. TITLE: OPERATE AND CONTROL THE FILLING AND CLOSING OF GLASS OR RIGID PLASTIC CONTAINERS FOR FOOD PRODUCTS.**
 - Specific outcome 1.1: Demonstrate knowledge of filling and closing of glass or rigid plastic containers.
 - Specific outcome 1.2: Prepare to fill and close glass or rigid plastic containers.
 - Specific outcome 1.3: Fill and close glass or rigid plastic containers.
 - Specific outcome 1.4: Perform end of filling and closing procedures.
- 2. TITLE: COLLATE AND SHRINK-WRAP PACKAGED PRODUCTS USING AUTOMATED WRAPPING EQUIPMENT.**
 - Specific outcome 2.1: Demonstrate knowledge of collating and shrink-wrapping.
 - Specific outcome 2.2: Prepare to collate and shrink-wrap packaged products.
 - Specific outcome 2.3: Collate and shrink-wrap packaged products.
 - Specific outcome 2.4: Perform end of shrink-wrapping procedures.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3

- 1. TITLE: EVALUATE THE ACCEPTABILITY OF RAW MILK IN A SILO FOR FURTHER PROCESSING.**
 - Specific outcome 1.1: Demonstrate knowledge of milk quality tests.
 - Specific outcome 1.2: Prepare for milk quality tests.
 - Specific outcome 1.3: Determine the quality of raw milk.
 - Specific outcome 1.4: Report on the quality of raw milk in terms of its acceptability for further processing.
- 2. TITLE: EVALUATE THE EFFICIENCY OF HOMOGENISATION OF A LIQUID DAIRY PRODUCT, AS INDICATED BY THE HOMOGENISATION INDEX.**
 - Specific outcome 2.1: Demonstrate knowledge of determining the homogenisation index of liquid dairy products.

- Specific outcome 2.2: Prepare for the determination of the homogenisation index.
- Specific outcome 2.3: Determine the homogenisation index of a liquid dairy product.
- Specific outcome 2.4: Report on the efficiency of homogenisation in terms of the homogenisation index.

3. TITLE: OPERATE AND CONTROL THE ASEPTIC FORMING, FILLING AND SEALING OF CONTAINERS FOR FOOD PRODUCTS.

- Specific outcome 3.1: Demonstrate knowledge of aseptic packaging.
- Specific outcome 3.2: Prepare to pack a food product aseptically in containers.
- Specific outcome 3.3: Pack a food product aseptically in containers.
- Specific outcome 3.4: Perform end of packaging procedures.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4

1. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF LIQUID LONG LIFE DAIRY PRODUCTS.

- Specific outcome 1.1: Demonstrate knowledge of the compositional quality of liquid long life dairy products.
- Specific outcome 1.2: Demonstrate knowledge of the sensory quality of liquid long life dairy products.
- Specific outcome 1.3: Determine the compositional and sensory quality of a liquid long life dairy product.
- Specific outcome 1.4: Report on the compositional and sensory quality of the liquid long life dairy product.

2. TITLE: MANUFACTURE A UHT PRODUCT.

- Specific outcome 2.1: Demonstrate knowledge of the manufacturing of UHT products.
- Specific outcome 2.2: Prepare to manufacture a UHT product.
- Specific outcome 2.3: Manufacture a UHT product prior to packaging.
- Specific outcome 2.4: Perform end of manufacturing procedures.

3. TITLE: STERILISE A LIQUID DAIRY PRODUCT IN A STERI-TOWER.

- Specific outcome 3.1: Demonstrate knowledge of sterilising liquid dairy products.
- Specific outcome 3.2: Prepare to sterilise a liquid dairy product.
- Specific outcome 3.3: Sterilise a packed liquid dairy product in a steri-tower.
- Specific outcome 3.4: Perform end of sterilising procedures.

SWEETENED CONDENSED MILK

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2

1. TITLE: OPERATE AND CONTROL THE FILLING AND SEAMING OF CANS FOR FOOD PRODUCTS.

- Specific outcome 1.1: Demonstrate knowledge of food canning.
- Specific outcome 1.2: Prepare to can a food product.
- Specific outcome 1.3: Can a food product.
- Specific outcome 1.4: Perform end of canning procedures.

2. TITLE: COLLATE AND SHRINK-WRAP PACKAGED PRODUCTS USING AUTOMATED WRAPPING EQUIPMENT.

- Specific outcome 2.1: Demonstrate knowledge of collating and shrink-wrapping.
- Specific outcome 2.2: Prepare to collate and shrink-wrap packaged products.
- Specific outcome 2.3: Collate and shrink-wrap packaged products.
- Specific outcome 2.4: Perform end of shrink-wrapping procedures.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3

1. TITLE: EVALUATE THE ACCEPTABILITY OF RAW MILK IN A SILO FOR FURTHER PROCESSING.

- Specific outcome 1.1: Demonstrate knowledge of milk quality tests.
- Specific outcome 1.2: Prepare for milk quality tests.

- Specific outcome 1.3: Determine the quality of raw milk.
- Specific outcome 1.4: Report on the quality of raw milk in terms of its acceptability for further processing.

2. TITLE: CONTROL LACTOSE CRYSTALLISATION IN SWEETENED CONDENSED MILK OR CONCENTRATED WHEY.

- Specific outcome 2.1: Demonstrate knowledge of controlled lactose crystallisation in sweetened condensed milk or concentrated whey.
- Specific outcome 2.2: Prepare to crystallise sweetened condensed milk or concentrated whey.
- Specific outcome 2.3: Crystallise sweetened condensed milk or concentrated whey.
- Specific outcome 2.4: Perform end of crystallisation procedures.

3. TITLE: EVALUATE THE EFFICIENCY OF HOMOGENISATION OF A LIQUID DAIRY PRODUCT, AS INDICATED BY THE HOMOGENISATION INDEX.

- Specific outcome 3.1: Demonstrate knowledge of determining the homogenisation index of liquid dairy products.
- Specific outcome 3.2: Prepare for the determination of the homogenisation index.
- Specific outcome 3.3: Determine the homogenisation index of a liquid dairy product.
- Specific outcome 3.4: Report on the efficiency of homogenisation in terms of the homogenisation index.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4

1. TITLE: EVAPORATE A LIQUID FOOD PRODUCT USING A FALLING OR RISING FILM EVAPORATOR.

- Specific outcome 1.1: Demonstrate knowledge of evaporation.
- Specific outcome 1.2: Prepare to evaporate a liquid food product.
- Specific outcome 1.3: Evaporate a liquid food product in a falling or rising film evaporator.
- Specific outcome 1.4: Perform end of evaporation procedures.

2. TITLE:

EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF CONDENSED MILK PRODUCTS.
- Specific outcome 2.1:

Demonstrate knowledge of the compositional quality of condensed milk.
- Specific outcome 2.2:

Demonstrate knowledge of the sensory quality of condensed milk.
- Specific outcome 2.3:

Determine the compositional and sensory quality of condensed milk.
- Specific outcome 2.4:

Report on the compositional and sensory quality of condensed milk.

PROCESS CHEESE

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2

1. TITLE:

PREPARE A PROCESS CHEESE MIXTURE.
- Specific outcome 1.1:

Demonstrate knowledge of the preparation of a process cheese mixture.
- Specific outcome 1.2:

Prepare for process cheese mixture preparation.
- Specific outcome 1.3:

Prepare a process cheese mixture.
- Specific outcome 1.4:

Perform end of preparation procedures.
2. TITLE:

OPERATE AND CONTROL THE FILLING AND CLOSING OF GLASS OR RIGID PLASTIC CONTAINERS FOR FOOD PRODUCTS.
- Specific outcome 2.1:

Demonstrate knowledge of filling and closing of glass or rigid plastic containers.
- Specific outcome 2.2:

Prepare to fill and close glass or rigid plastic containers.
- Specific outcome 2.3:

Fill and close glass or rigid plastic containers.
- Specific outcome 2.4:

Perform end of filling and closing procedures.
3. TITLE:

OPERATE AND CONTROL THE INDIVIDUAL WRAPPING OF PROCESS CHEESE PORTIONS.
- Specific outcome 3.1:

Demonstrate knowledge of individual wrapping of process cheese portions.

- Specific outcome 3.2: Prepare for wrapping of process cheese portions.
- Specific outcome 3.3: Wrap process cheese portions individually.
- Specific outcome 3.4: Perform end of wrapping procedures.

4. TITLE: COLLATE AND SHRINK-WRAP PACKAGED PRODUCTS USING AUTOMATED WRAPPING EQUIPMENT.

- Specific outcome 4.1: Demonstrate knowledge of collating and shrink-wrapping.
- Specific outcome 4.2: Prepare to collate and shrink-wrap packaged products.
- Specific outcome 4.3: Collate and shrink-wrap packaged products.
- Specific outcome 4.4: Perform end of shrink-wrapping procedures.

UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4

1. TITLE: MANUFACTURE PROCESS CHEESE FROM A FORMULATED PROCESS CHEESE MIXTURE.

- Specific outcome 1.1: Demonstrate knowledge of the manufacturing of process cheese.
- Specific outcome 1.2: Prepare to manufacture process cheese.
- Specific outcome 1.3: Manufacture process cheese prior to packaging.
- Specific outcome 1.4: Monitor and control the manufacturing of process cheese.

2. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF PROCESS CHEESE.

- Specific outcome 2.1: Demonstrate knowledge of the compositional quality of process cheese.
- Specific outcome 2.2: Demonstrate knowledge of the sensory quality of process cheese.
- Specific outcome 2.3: Determine the compositional and sensory quality of process cheese.
- Specific outcome 2.4: Report on the compositional and sensory quality of process cheese.