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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

Food

Registered by Organising Field 06, Manufacturing, Engineering and Technology, publishes the following qualifications and unit standards for public comment.

This notice contains the titles, fields, sub-fields, **NQF** levels, credits, and purpose of the qualifications and unit standards. The qualifications unit standards can be accessed via the SAQA web-site at **www.saqa.org.za**. Copies may also be obtained from the Directorate of Standards Setting and Development at the **SAQA** offices, Hatfield Forum West, **1067** Arcadia Street, Hatfield, Pretoria.

Comment on the unit standards should reach SAQA at the address ***below and no later than 7 November*** **2005. All** correspondence should be marked **Standards Setting – SGB for Food and** addressed **to**

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SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:

National Certificate: Dairy Primary Processing

SAQA QUAL ID	*QUALIFICATION TITLE*
50024	National Certificate: Dairy Primary Processing

SGB NAME		*NSB 06*	*PROVIDER NAME*
SGB Food		Manufacturing, Engineering and Technology	
QUAL TYPE		*FIELD*	*SUBFIELD*
National Certificate		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	MINIMUM *CREDITS*	*NQF LEVEL*	*QUALIFICATION CLASS*
Undefined	120	Level 3	Regular-Unit Stds Based

PURPOSE AND RATIONALE OF THE QUALIFICATION

Purpose:

The purpose of this qualification is to ensure that the person who performs dairy primary processing can accurately operate the relevant equipment, solve related problems and evaluate the quality of the processed product. The primary processing of raw milk, cream or fruit-milk mixtures is the preliminary step to the manufacturing of almost all dairy or dairy containing products. The skills and knowledge of primary processing are therefore seen as vital to ensure good quality and safe end products.

A person acquiring this qualification will be able to apply primary processing technologies to milk, cream or fruit-milk mixtures. These products will be safe for human consumption, quality assured and comply with minimum legislation.

Primary processing technologies refer to:

> Pasteurisation, vaccreation or thermisation.
> Cream separation and standardisation.
> Homogenisation (optional).

Portable competencies such as cleaning and sanitising of the primary processing system will also be obtained. The person will be able to apply all relevant personal safety and food safety practices during the performance of his/her tasks.

This qualification will allow a person to have access to education, training and career paths within the dairy industry, ensuring learning mobility and progression on the framework through articulation with other qualifications. This qualification will enhance the social, economic and personal development of the learner, as well as the sustainability and productivity of the dairy industry. The qualification will accelerate the redress of past unfair discrimination in education, training and employment opportunities.

Rationale:

This qualification reflects the workplace-based needs of the dairy industry that are expressed by employers and employees, both now and for the future. Typical learners would be persons who are currently working in a dairy primary processing environment who have not received any formal recognition for their skills and knowledge, as well as workers that are progressing from a milk or cream reception environment to a dairy primary processing environment. Learners may also include new entrants to the dairy manufacturing industry.

This qualification is a reviewed and updated version of the similar qualification developed by the dairy industry in **1990,** as a result of the demand in the dairy industry for national recognition for workers in a dairy primary processing environment. This former qualification in dairy primary processing was registered with Department of Labour from **1990-1998,** where after it was registered on the NQF as an integral part of the interim registered dairy qualifications on Level 4, especially the National Certificate: Fresh Dairy Product Preparation (NLRD **17282).** The first version of the unit standards based National Certificate in Dairy Primary Processing NQF3 was registered on the NQF in **2001** and this qualification serves as the revised version thereof.

This qualification aims at providing formal recognition for competencies already obtained and will continue to do so by providing recognition for workers in the dairy industry, specifically in dairy primary processing. In addition, this qualification provides the new entrant with the opportunity to obtain competencies in milk primary processing within the workplace. In this way, value is added to workers' employability and competence and the sustainability of the dairy industry is improved.

This qualification provides the learner with the skills and knowledge necessary to be employed in different careers within the dairy industry, including the small, medium and micro enterprise, as well as in other food industries. The range of electives will allow the individual to pursue a career within dairy primary processing, packaging, laboratory analysis or quality assurance. Skilled workers are one of the key players in better manufacturing standards and productivity, which may increase business prosperity. This qualification will assist in social and economic transformation.

The secondary focus of the qualification is on food safety and quality control and therefore this qualification will contribute to the establishment of workplace competencies that will ensure food products that are healthy and safe for human consumption.

RECOGNIZE PREVIOUS LEARNING?

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LEARNING ASSUMED TO BE IN PLACE

It is assumed that learners are already competent in the following at NQF Level **2:**

> Communication.
> Mathematical literacy.
> Natural science and technology principles.
> Application of personal safety practices.
> Application of food safety and hygiene practices.
> Application of cleaning and sanitising (CIP and COP).
> Laboratory analysis (alizarol, temperature, pH, freezing point/solids-non-fat).

Recognition of prior learning

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

Access to the Qualification:

> Open access.

QUALIFICATION RULES

> All the Fundamental Unit Standards (36 Credits) are compulsory.

> All the Core Unit Standards (64 Credits) are compulsory.

> A minimum of 20 Credits to be selected from the Electives.

> Total for the qualification: **120** Credits.

EXIT LEVEL OUTCOMES

1. Apply fundamental processing technologies to milk, cream or fruit-milk mixtures.
2. Perform quality control practices during primary processing of milk, cream or fruit-milk mixtures.
3. Contribute to quality assurance procedures during primary processing of milk, cream or fruit-milk mixtures.

Critical cross-field outcomes

While performing laboratory functions, qualifying learners can:

1. Identify and solve problems in which response displays that responsible decisions, using critical and creative thinking, have been made by:
> Problem solving during primary processing, packaging and quality control.
Evident in all exit level outcomes.

2. Work effectively with others as a member of a team, group, organisation or community by:
> Applying team-work during primary processing and packaging.
Evident in all exit level outcomes.
> Co-ordinating one's work with that of others in the direct surrounding area.
Evident in all exit level outcomes.

3. Organise and manage oneself and one's activities responsibly and effectively by:
> Planning one's activities.
Evident in all exit level outcomes.

4. Collect, analyse, organise and critically evaluate information by:
> Keeping records of primary processing and packaging.
Evident in exit level outcome 1 and **2.**
> Analysing samples and evaluating the results.
Evident in exit level outcome **1** and 3.

5. Communicate effectively by using mathematical and/or language skills in the modes of oral and/or written presentations by:
> Keeping records and noting results.
Evident in exit level outcome 1 and **2.**

6. Use science and technology effectively and critically, showing responsibility towards the environment and health of others by:
> Working according to health and safety regulations.
Evident in all exit level outcomes.

7. Demonstrate an understanding of the world as a set of related systems by recognising that problem solving contexts do not exist in isolation by:

> Problem solving during primary processing, packaging and quality control.
.Evident in all exit level outcomes.

8. Contribute to the full personal development of each learner and the social and economic development of the society at large by:
> Performing primary processing.
Evident in exit level outcome 1.
> Packaging the product.
Evident in exit level outcome 2.
> Performing quality control practices.
Evident in exit level outcome 3.

ASSOCIATED ASSESSMENT CRITERIA

1.
> Knowledge and comprehension regarding heating and cooling media and procedures for primary processing of the product are applied according to standard dairy principles.
> Milk, cream or fruit-milk mixtures are pasteurised according to standard operating procedures.
> Cream is separated according to standard operating procedures.
> Milk, cream or fruit-milk mixtures are standardised according to standard operating procedures.

2.
> Quality control practices are performed for the primary processing of milk, cream or fruit-milk mixtures according to standard operating procedures.
> The processed milk, cream or fruit milk mixture is analysed for sensory attributes according to standard operating procedures.
> The phosphatase test is performed on the processed product to determine efficiency of pasteurisation.

3.
> Knowledge and comprehension of the concept of microbiology and the effect of micro-organisms on personal health, hygiene and dairy product safety are applied according to standard dairy microbiology principles.
> Knowledge and comprehension regarding the nature of milk and its intended uses are applied according to standard dairy principles.
> Quality assurance procedures are adhered to through performing quality control practices according to standard operating procedures.

Integrated Assessment

The applied competence (practical, foundational and reflexive competencies) of this qualification will be achieved if a learner is able to apply primary processing technologies on milk, cream or fruit-milk mixtures. These products will be safe for human consumption, quality assured and complying with minimum legislation.

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

Applicable assessment tool(s) must be used to establish the foundational, reflexive and embedded knowledge applied to solve problems.

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

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

The primary processing techniques can be assessed in one application.

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes.

INTERNATIONAL COMPARABILITY

Benchmarking was done against the NZQA from New Zealand, NVQ from England, Wales and Northern Ireland, AQF from Australia and the SVQ from Scotland.

On the NZQA from New Zealand, six qualifications exist at Level 3 for Dairy Manufacturing, namely:

> National Certificate in Dairy Manufacturing (Storage and Supply Chain) with an optional strand in Product Safety.
> National Certificate in Dairy Manufacturing with optional strands in People Skills and Computing Skills.
> National Certificate in Dairy Manufacturing (Workplace Safety).
> National Certificate in Dairy Manufacturing (Sales and Service).
> National Certificate in Dairy Manufacturing (Environmental Systems).
> National Certificate in Dairy Manufacturing (Process Skills) with optional strands in Performance Improvement and Product Safety.

The last of the above-mentioned qualifications was modelled against this qualification. The Level 3 National Certificate in Dairy Manufacturing (Process Skills) from the NZQA contains a minimum of 48 credits and can be extended with optional strands in performance improvement and product safety skills to 72 credits. It is aimed at experienced employees working under general supervision and applies to process operations staff in all branches of the industry. It recognises the ability to apply on-the-job skills. The qualification is structured with a compulsory generic section, an occupational elective section that covers common job requirements using products and technologies, and an elective section covering associated skills and special functions. The two optional strands afford access to added skills in food safety and performance improvement to compliment career specialisation. This qualification design, especially Elective A, is very similar to the South African counterpart.

Compulsory generic standards cover the following competencies:
> Implementation of quality systems.
> Implementation of product safety plans.
> Occupational health and safety.

Elective standards cover the following competencies:

Elective A:
> Packaging (forming, filling and palletising).
> Primary processing (holding and storage, heat treatment, cooling, separation, homogenising, evaporation, drying, membrane separation).
> Product formulation (mixing and blending, colouring and flavouring).
> Dairy manufacturing (butter churning, cheese curd production, cooling and hardening, fermentation, batch freezing).
> Personal management.
> Statistics.
> Hazard Analysis Critical Control Points (HACCP).

> Problem solving on faulty equipment.

Elective B:
> Measurement and calculation.
> Information technology skills.
> Environmental management.
> Dairy laboratory practices.
> People skills.
> Product safety and risk management.
> Supply chain skills.
> First line maintenance.
> Health and safety.

Thus, the New Zealand qualification compares well with the South African qualification, although Elective B provides a broader focus to the New Zealand qualification with regards to people skills and management. These skills are addressed in the Level 5 South African qualification in First Line Manufacturing Management. Some manufacturing skills are also included in the Level 3 New Zealand qualification of which the counterparts are included in the Level 4 South African qualification on Dairy Manufacturing Technology.

On the NVQ from England, Wales and Northern Ireland, Dairy Manufacturing Technology forms part of the City & Guilds National Vocational Qualification in Food and Drink Manufacturing Operations at Levels 1,2 and 3. Level 1 is suitable for entry-level staff, whereas Level 3 is aimed at supervisors, team leaders or those with a high level of technical skills. A Level 2 involves approximately six months of study and practice, whereas a Level 3 would take between one to two years to complete.

Units in the qualification are either optional or mandatory. Mandatory units focus on areas such as health and safety and teamwork, which are common to any job role within the food and drink manufacturing industry. Optional units include areas such as maintaining the quality of products, cleaning in place, hygiene and control units that focus on different processes within food and drink manufacturing. At Level 2, units cover similar areas to those at Level 1, with a few additions, in particular diagnosing and rectifying operating problems, The units in Level 3 differ from those at Levels 1 and 2 by having a more supervisory focus, reflecting the job roles of those who will take them.

There was therefore no qualification on the NVQ with a direct focus on primary processing, as in the case of the South African qualification. However, the latter qualification forms part of a clear learning pathway in the Dairy Industry.

The AQF from Australia contains a qualification (Certificate III) in Food Processing, which consist of core, multi-sector specialist and sector specialist units. The qualification has a strong food safety focus. The following multi-sector specialist and specialist units in the qualification are applicable to dairy primary processing:

> Applying knowledge of the raw product (Level 3).
> Operating basic equipment (Level 1).
> Operating an evaporation proves (Level 2).
> Operating a heat treatment process (Level 2).
> Monitoring process operation (Level 1).
> Operating a homogenising process (Level 2).
> Operating a separation process (Level 2).
> Packaging (Level 3).

The SVQ from Scotland contains a qualification in Food and Drink Manufacturing Operations at Level 3. It consists of mandatory and optional units outlined below:

Mandatory units:
> Controlling and maintaining quality.
> Problem solving.
> Maintaining and improving health, hygiene and safety.
> Achieving organisational and personal goals.
> Distribution of information.

Optional units:
> Starting up and shutting down manufacturing operations.
> Maintaining plant and equipment.
> Contributing to auditing.
> Training and development.
> Handling and storage of materials.
> Commissioning of plant equipment and process.
> Effective use of resources.
> People and human resource skills.
> Implementing quality assurance systems.
> Product development.
> Improvement in operations.
> Improvement in environmental practices.

Clearly the Scottish qualification has a major different focus than this South African qualification. The strong management focus in the Scottish qualification is reflected in the Level 5 South African qualification in First Line Manufacturing Management.

Summary:

New Zealand, Australia and the UK have high, quality sophisticated food processing industries as well as a large dairy component in their agricultural sector. Training provided to workers in these sectors is of a very high caliber and forms a good basis for comparison for this South African Qualification. The comparisons done above with appropriate qualifications from those countries, shows that the competencies developed in this qualification are well aligned with those in the qualifications used for the comparability study, even though the main focus of each is slightly different.

ARTICULATION OPTIONS

This qualification articulates vertically with the Further Education and Training Certificate in Dairy Manufacturing Technology NQF4 with the following specialisations:

> Ripened cheese.
> Cottage cheese.
> Processed cheese.
> Fermented dairy products.
> Dried dairy products.
> Liquid long life dairy products.
> Sweetened condensed milk.
> Butter and butter related spreads.
> Frozen ice cream and frozen ice cream related products.

This qualification articulates horizontally with the following qualifications:

> National Certificate in Food and Beverage Packaging NQF3.
> National Certificate in Food Laboratory Analysis NQF3.

MODERATION OPTIONS

> Anyone assessing a learner or moderating the assessment of a learner against this qualification must be registered as an assessor and moderator respectively with the relevant **ETQA,** or with another **ETQA** that has a Memorandum of Understanding with the relevant **ETQA.**

> Any institution offering learning that will enable the achievement of this qualification must be accredited as a provider with the relevant ETQA, or with another **ETQA** that has a Memorandum of Understanding with the relevant **ETQA.**

> Assessment and moderation of assessment will be overseen by the relevant **ETQA,** or by another ETQA that has a Memorandum of Understanding with the relevant **ETQA,** according to the **ETQA's** policies and guidelines for assessment and moderation.

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

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

CRITERIA FOR THE REGISTRATION OF ASSESSORS

For an applicant to register as an assessor, the following are essential:

> Anyone assessing a learner against this qualification must be registered as an assessor with the relevant ETQA, or with another ETQA that has a Memorandum of Understanding with the relevant **ETQA.**
> The applicant should have a similar qualification to this one at **NQF** Level 4 or higher, with a minimum of 12 months field experience.

NOTES

This qualification replaces 20214, "National Certificate: Food and Beverage Processing: Dairy Primary Processing", Level 3, 130 credits.

UNIT STANDARDS
(Note: A blank space after this line means that the qualification is not based on Unit Standards.)

	UNIT STANDARD ID AND TITLE	LEVEL	CREDITS	STATUS
Core	120242 Demonstrate an understanding of heating and cooling media in a food-manufacturing environment	Level 2	4	Draft - Prep for P Comment
COre	119802 Perform quality control practices in a food or sensitive consumer product operation	Level 3	6	Recommended
Core	120234 Pasteurise, thermise or vaccreate a liquid food product by means of a plate or tubular heat exchanger	Level 3	12	Draft - Prep for P Comment
COre	120235 Demonstrate an understanding of the concept of microbiology in a food handling environment	Level 3	6	Draft - Prep for P Comment
	120240 Evaluate the sensory quality of pasteurised milk, cream or fruit milk mixtures	Level 3	5	Draft - Prep for P Comment
	120241 Evaluate the quality of a dairy product in terms of its fat content as determined by the Gerber M Babcock fat determination method	Level 3	5	Draft - Prep for P Comment
Core	120243 Evaluate the efficiency of milk or cream pasteurisation as indicated by the phosphatase test	Level 3	5	Draft - Prep for P Comment
Core	120245 Demonstrate an understanding of the nature of milk and its transformation into commercial dairy products	Level 3	6	Draft - Prep for P Comment
Core	120255 Standardise the fat content of a liquid dairy product	Level 3	7	Draft - Prep for P Comment

core	**120259** Separate liquids using a centrifugal separator	Level3	8	Draft - Prep for P Comment
Elective	**120238** Collate and shrink-wrap packaged products using automated wrapping equipment	Level2	6	Draft - Prep for P Comment
Elective	**120233** Operate and control the filling and closing of glass or rigid plastic containers for food products	Level 3	10	Draft - Prep for P Comment
Elective	**120236** Evaluate the efficiency of homogenisation of a liquid dairy product	Level3	4	Draft - Prep for P Comment
Elective	**120237** Evaluate the composition of raw milk as determined by an infra red analyser	Level 3	6	Draft - Prep for P Comment
Elective	**120239** Monitor critical control points (CCPs) as an integral part of a hazard analysis critical control point (HACCP) system	Level 3	6	Draft - Prep for P Comment
Elective	**120244** Evaluate the quality of a fruit juice, fruit juice concentrate or fruit milk mixture as indicated by its Brix-acid ratio	Level 3	3	Draft - Prep for P Comment
Elective	**120256** Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food products	Level 3	10	Draft - Prep for P Comment'
Elective	**120257** Homogenise a liquid dairy product	Level3	6	Draft - Prep for P Comment
Elective	**120258** Operate and control the forming, filling and hermetic sealing of gable top or brick type cartons for food products	Level 3	12	Draft - Prep for P Comment
Elective	**119796** Monitor and control quality assurance procedures in a food or sensitive consumer product environment	Level4	8	Recommended
Fundamental	**7456** Use mathematics to investigate and monitor the financial aspects of personal, business and national issues	Level 3	5	Reregistered
Fundamental	**9010** Demonstrate an understanding of the use of different number bases and measurement units and an awareness of error in the context of relevant calculations	Level 3	2	Reregistered
Fundamental	**9012** Investigate life and work related problems using data and probabilities	Level3	5	Reregistered
Fundamental	**9013** Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts	Level3	4	Reregistered
Fundamental	**119457** Interpret and use information from texts	Level 3	5	Recommended
Fundamental	**119465** Write/present/sign texts for a range of communicative contexts	Level3	5	Recommended
Fundamental	**119467** Use language and communication in occupational learning programmes	Level3	5	Recommended
Fundamental	**119472** Accommodate audience and context needs in oral/signed communication	Level3	5	Recommended

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: **1**

Demonstrate an understanding of heating and cooling media in a food-manufacturing environment

SAQA US ID	*UNIT STANDARD TITLE*		
120242	Demonstrate an understanding of heating and cooling media in a food-manufacturing environment		
SGB NAME		*NSB 06*	*PROVIDER NAME*
SGB Food		Manufacturing, Engineering and Technology	
UNIT STANDARD TYPE		*FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	4	Level 2	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the concept of energy.

SPECIFIC OUTCOME 2

Demonstrate an understanding of the generation and application of steam as a heating medium.

SPECIFIC OUTCOME 3

Demonstrate an understanding of the application of water and gasses as cooling media.

SPECIFIC OUTCOME 4

Demonstrate an understanding of the generation and application of electricity as an energy source for heating and cooling purposes.

SPECIFIC OUTCOME 5

Demonstrate an understanding of the safe handling of heating and cooling media.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: **2**

SAQA US ID	*UNIT STANDARD TITLE*		
120238	Collate and shrink-wrap packaged products using automated wrapping equipment		
SGB NAME		*NSB 06*	*PROVIDER NAME*
SGB Food		Manufacturing, Engineering and Technology	
UNIT STANDARD TYPE		*FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	6	Level 2	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of collating and shrink-wrapping.

SPECIFIC OUTCOME 2

Prepare to collate and shrink-wrap packaged products.

SPECIFIC OUTCOME 3

Collate and shrink-wrap packaged products.

SPECIFIC OUTCOME 4

Perform end of shrink-wrapping procedures.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: 3

Demonstrate an understanding of the concept of microbiology in a food handling environment

SAQA US ID	UNIT STANDARD TITLE		
120235	Demonstrate an understanding of the concept of microbiology in a food handling environment		
SGB NAME		NSB 06	PROVIDER NAME
SGB Food		Manufacturing, Engineering and Technology	
UNIT STANDARD TYPE		FIELD DESCRIPTION	SUBFIELD DESCRIPTION
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	6	Level 3	Regular

SPECIFIC OUTCOME 1

Demonstrate knowledge of the concept of micro-organisms in a food handling environment.

SPECIFIC OUTCOME 2

Demonstrate knowledge of the growth and reproduction of micro-organisms in a food handling environment.

SPECIFIC OUTCOME 3

Identify good manufacturing practices to control microbiological contamination during food handling.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: 4

SAQA US ID	*UNIT STANDARD TITLE*		
120245	Demonstrate an understanding of the nature of milk and its transformation into commercial dairy products		
SGB NAME		*NSB 06*	*PROVIDER NAME*
SGB Food		Manufacturing, Engineering and Technology	
UNIT STANDARD TYPE		*FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	*6*	Level 3	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the origin of milk.

SPECIFIC OUTCOME 2

Demonstrate an understanding of the nutritional importance of milk.

SPECIFIC OUTCOME 3

Demonstrate an understanding of the physical properties of milk.

SPECIFIC OUTCOME 4

Demonstrate an understanding of the transformation of milk into commercial dairy products.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: **5**

SAQA US ID	UNIT STANDARD TITLE		
120243	Evaluate the efficiency of milk or cream pasteurisation as indicated by the phosphatase test		
SGB NAME		**NSB 06**	**PROVIDER NAME**
SGB Food		Manufacturing, Engineering and Technology	
UNIT STANDARD TYPE		**FIELD DESCRIPTION**	**SUBFIELD DESCRIPTION**
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	**CREDITS**	**NQF LEVEL**	**UNIT STANDARD TYPE**
Undefined	5	Level 3	Regular

SPECIFIC OUTCOME 2

Prepare for the phosphatase test on milk or cream.

SPECIFIC OUTCOME 3

Perform the phosphatase test on milk or cream.

SPECIFIC OUTCOME 4

Report on the efficiency of milk or cream pasteurisation in terms of the results of the phosphatase test.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: **6**

SAQA US ID	*UNIT STANDARD TITLE*		
120241	Evaluate the quality of a dairy product in terms of its fat content, as determined by the Gerber or Babcock fat determination method		
SGB NAME		*NSB 06*	*PROVIDER NAME*
SGB Food		Manufacturing, Engineering and Technology	
UNIT STANDARD TYPE		*FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	*5*	Level *3*	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of determining the fat content of dairy products by means of the Gerber or Babcock fat test.

SPECIFIC OUTCOME 2

Prepare for the Gerber or Babcock fat test on a dairy product.

SPECIFIC OUTCOME 3

Determine the fat content of a dairy product with the Gerber or Babcock fat test.

SPECIFIC OUTCOME 4

Report on the quality of a dairy product in terms of its fat content.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: ***7***

SAQA US ID	***UNIT STANDARD TITLE***		
120240	Evaluate the sensory quality of pasteurised milk, cream or fruit milk mixtures		
SGB NAME	***NSB*** 06	PROVIDER NAME	
SGB Food	Manufacturing, Engineering and Technology		
UNIT STANDARD TYPE	***FIELD DESCRIPTION***	***SUBFIELD DESCRIPTION***	
Regular	Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	***CREDITS***	***NQF LEVEL***	***UNIT STANDARD TYPE***
Undefined	5	Level 3	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the sensory quality of pasteurised milk, cream or fruit milk mixtures.

SPECIFIC OUTCOME 2

Prepare for the determination of the sensory quality of pasteurised milk, cream or fruit milk mixtures.

SPECIFIC OUTCOME 3

Determine the sensory quality of pasteurised milk, cream or fruit milk mixtures.

SPECIFIC OUTCOME 4

Report on the sensory quality of pasteurised milk, cream or fruit milk mixtures.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: ***8***

SAQA US ID	***UNIT STANDARD TITLE***		
120234	Pasteurise, thermise or vaccreate a liquid food product by means of a plate or tubular heat exchanger		
SGB NAME		NSB 06	***PROVIDER NAME***
SGB Food		Manufacturing, Engineering and Technology	
UNIT STANDARD TYPE		***FIELD DESCRIPTION***	***SUBFIELD DESCRIPTION***
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	***CREDITS***	***NQF LEVEL***	***UNIT STANDARD TYPE***
Undefined	**12**	Level 3	Regular

SPECIFIC OUTCOME **1**

Demonstrate an understanding of pasteurisation, thermisation or vaccreation of liquid food products.

SPECIFIC OUTCOME **2**

Prepare to pasteurise, thermise or vaccreate a liquid food product.

SPECIFIC OUTCOME **3**

Pasteurise, thermise or vaccreate a liquid food product in a plate or tubular heat exchanger.

SPECIFIC OUTCOME 4

Perform end of pasteurisation, thermisation or vaccreation duties.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: 9

Separate liquids using a centrifugal separator

SAQA US ID	*UNIT STANDARD TITLE*		
120259	Separate liquids using a centrifugal separator		
SGB NAME		*NSB 06*	*PROVIDER NAME*
SGB Food		Manufacturing, Engineering and Technology	
UNIT STANDARD TYPE		*FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	8	Level 3	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of separating liquids using centrifugal force.

SPECIFIC OUTCOME 2

Prepare *to* separate liquids with different densities.

SPECIFIC OUTCOME 3

Separate liquids using centrifugal force.

SPECIFIC OUTCOME 4

Perform end of separation procedures.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: 10

SAQA US ID	*UNIT STANDARD TITLE*		
120255	Standardise the fat content of a liquid dairy product		
SGB NAME		*NSB 06*	*PROVIDER NAME*
SGB Food		Manufacturing, Engineering and Technology	
UNIT STANDARD TYPE		*FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	7	Level 3	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of fat standardisation of liquid dairy products.

SPECIFIC OUTCOME 2

Prepare for standardisation.

SPECIFIC OUTCOME 3

Standardise a liquid dairy product.

SPECIFIC OUTCOME 4

Perform end of standardisation procedures.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: 11

Evaluate the composition of raw milk as determined by an infra red analyser

SAQA US ID	*UNIT STANDARD TITLE*
120237	Evaluate the composition of raw milk as determined by an infra red analyser

SGB NAME	*NSB 06*	*PROVIDER NAME*
SGB Food	Manufacturing, Engineering and Technology	

UNIT STANDARD TYPE	*FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular	Manufacturing, Engineering and Technology	Manufacturing and Assembly

ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	***6***	Level **3**	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the determination of raw milk composition by means of an infra red analyser.

SPECIFIC OUTCOME 2

Prepare to determine the composition of raw milk with an infra red analyser.

SPECIFIC OUTCOME 3

Calibrate an infra red analyser.

SPECIFIC OUTCOME 4

Determine the composition of raw milk with an infra red analyser.

SPECIFIC OUTCOME 5

Report on the composition of raw milk.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: 12

Evaluate the efficiency of homogenisation of a liquid dairy product

SAQA US ID	*UNIT STANDARD TITLE*		
120236	Evaluate the efficiency of homogenisation of a liquid dairy product		
SGB NAME		*NSB 06*	*PROVIDER NAME*
SGB Food		Manufacturing, Engineering and Technology	
UNIT STANDARD TYPE		*FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	4	Level 3	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of determining the efficiency of homogenisation of liquid dairy products.

SPECIFIC OUTCOME 2

Prepare for the determining the efficiency of homogenisation.

SPECIFIC OUTCOME 3

Determine the efficiency of homogenisation of a liquid dairy product.

SPECIFIC OUTCOME 4

Report on the efficiency of homogenisation.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: **13**

SAQA US ID	*UNIT STANDARD TITLE*		
120244	Evaluate the quality of a fruit juice, fruit juice concentrate or fruit milk mixture as indicated by its Brix-acid ratio		
SGB NAME		*NSB 06*	*PROVIDER NAME*
SGB Food		Manufacturing, Engineering and Technology	
UNIT STANDARD TYPE		*FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	**3**	Level **3**	Regular

SPECIFIC OUTCOME **1**

Demonstrate an understanding of determining the Brix-acid ratio.

SPECIFIC OUTCOME **2**

Prepare for the determination of the % total soluble solids ("Brix) and titratable acidity.

SPECIFIC OUTCOME **3**

Determine the % total soluble solids ("Brix), titratable acidity and Brix-acid ratio.

SPECIFIC OUTCOME 4

Report on the quality of a fruit juice, fruit juice concentrate or fruit-milk mixture in terms of its Brix-acid ratio.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: 14

Homogenise a liquid dairy product

SAQA US ID	*UNIT STANDARD TITLE*		
120257	Homogenise a liquid dairy product		
SGB NAME		*NSB 06*	*PROVIDER NAME*
SGB Food		Manufacturing, Engineering and Technology	
UNIT STANDARD TYPE		*FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	6	Level 3	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of homogenisation of liquid dairy products.

SPECIFIC OUTCOME 2

Prepare to homogenise a liquid dairy product.

SPECIFIC OUTCOME 3

Homogenise a liquid dairy product.

SPECIFIC OUTCOME 4

Perform end of homogenisation procedures.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: **15**

SAQA US ID	*UNIT STANDARD TITLE*		
120239	Monitor critical control points (CCPs) as an integral part of a hazard analysis critical control point (HACCP) system		
SGB NAME		*NSB 06*	*PROVIDER NAME*
SGB Food		Manufacturing, Engineering and Technology	
UNIT STANDARD TYPE		*FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	*6*	Level *3*	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of a CCP in a food handling environment.

SPECIFIC OUTCOME 2

Monitor and record a CCP.

SPECIFIC OUTCOME 3

Take action when a non-conformance is detected against the critical limits of a CCP.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: **16**

Operate and control the filling and closing of glass or rigid plastic containers for food products

SAQA US ID	*UNIT STANDARD TITLE*		
120233	Operate and control the filling and closing of glass or rigid plastic containers for food products		
SGB NAME		*NSB 06*	*PROVIDER NAME*
SGB Food		Manufacturing, Engineering and Technology	
UNIT STANDARD TYPE		*FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	10	Level 3	Regular

SPECIFIC OUTCOME **1**

Demonstrate an understanding of filling and closing of glass or rigid plastic containers.

SPECIFIC OUTCOME 2

Prepare to fill and close glass or rigid plastic containers.

SPECIFIC OUTCOME 3

Fill and close glass or rigid plastic containers.

SPECIFIC OUTCOME **4**

Perform end of filling and closing procedures.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: **17**

SAQA US ID	*UNIT STANDARD TITLE*
120258	Operate and control the forming, filling and hermetic sealing of gable top or brick type cartons for food products

SGB NAME		*NSB 06*	*PROVIDER NAME*
SGB Food		Manufacturing, Engineering and Technology	
UNIT STANDARD TYPE		*FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	**12**	Level **3**	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of hermetic gable top or brick type carton packaging.

SPECIFIC OUTCOME 2

Prepare to pack a food product in gable top or brick type cartons.

SPECIFIC OUTCOME 3

Pack a food product hermetically in gable top or brick type cartons.

SPECIFIC OUTCOME 4

Perform end of packaging procedures.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: 18

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

SAQA US ID	*UNIT STANDARD TITLE*		
120256	Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food products		
SGB NAME		*NSB 06*	*PROVIDER NAME*
SGB Food		Manufacturing, Engineering and Technology	
UNIT STANDARD TYPE		*FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	10	Level 3	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of packaging of food products in plastic sachets or bags.

SPECIFIC OUTCOME 2

Prepare to pack a food product in plastic sachets or bags.

SPECIFIC OUTCOME 3

Pack a food product hermetically in plastic sachets or bags.

SPECIFIC OUTCOME 4

Perform end of packaging procedures.