

No. 144

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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 Manufacturing

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

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purpose of the qualification and unit standards. The qualification and 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 qualification and unit standards should reach **SAQA** at the address **below and no later than 76 March 2006**. All correspondence should be marked **Standards Setting – SGB for Food Manufacturing** and addressed to

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SAQA QUAL ID	QUALIFICATION TITLE		
50306	Further Education and Training Certificate: Dairy Manufacturing Technology		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
QUAL TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD	
Further Ed and Training Cert	Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	MINIMUM CREDITS	NQF LEVEL	QUALIFICATION CLASS
Undefined	120	Level 4	Regular-Unit Stds Based

PURPOSE AND RATIONALE OF THE QUALIFICATION

Purpose:

The purpose of this qualification is to ensure that the person who does dairy product manufacturing will be able to manufacture safe, quality assured and hygienically packaged dairy products from raw materials, within the specialisation area(s) of his/her choice. The range of dairy products for specialisation purposes includes the following:

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

Through this qualification the learner will be able to take part in quality control practices within the manufacturing environment and will thereby contribute to the overall quality assurance procedures and quality management system within his/her work environment.

Portable competencies such as cleaning and sanitising of the manufacturing 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. Portability is further enhanced in this qualification by the different specialisation options offered, i.e. after completion of the qualification, a person will be competent in one area of specialisation but one specialisation area will allow for portability to eight other specialisations.

This qualification will allow a person to have access to education, training and career paths within the dairy and food industries, 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 is a revised and updated version of the 11 similar qualifications developed by the dairy industry during the 1990s as a result of the demand in the dairy industry for national recognition for workers

in dairy manufacturing technology. These 11 former qualifications in dairy manufacturing technology were respectively registered with the Department of Labour from 1990-1998, where after they were registered on the NQF up till now as interim registered dairy qualifications on Level 4.

They are:

- > 17287 - National Certificate: Butter Manufacturing
- > 10835 - National Certificate: Condensed Milk Preparation
- > 17284 - National Certificate: Cottage Cheese Preparation
- > 10829 - National Certificate: Dairy Powder Manufacturing
- > 10817 - National Certificate: Fermented Dairy Products Preparation
- > 17282 - National Certificate: Fresh Dairy Product Preparation
- > 10827 - National certificate: Gouda and Cheddar Cheese Manufacturing
- > 17288 - National Certificate: Pasta Filata and Grana Type Cheese Manufacturing
- > 10837 - National Certificate: Processed Cheese Making
- > 17285 - National Certificate: Steri Processing
- > 10823 - National Certificate: UHT Processing

Due to certain commonalities in the dairy manufacturing industry ~~the need~~ arose to integrate all the above-mentioned qualifications into one single qualification with specialisation options. It is therefore the aim of this qualification ~~to~~ address the combined skills needs of the dairy manufacturing industry as a whole.

This qualification aims at providing formal recognition for competencies already obtained ~~but~~ not yet recognised by providing recognition for workers in the dairy industry, specifically in dairy manufacturing technology. In addition, this qualification provides the new entrant with the opportunity to obtain competencies in dairy product manufacturing 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 to be employed within the dairy manufacturing industry with the possibility of articulation into areas of quality control and assurance, laboratory analysis, packaging and other areas of food manufacturing technology (nondairy). The range of electives will allow the learner to pursue a career within a laboratory, quality control/assurance or packaging environment. 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.

There are currently skills shortages in dairy manufacturing technology in ~~South Africa~~ and since South Africa is now being considered as an opportunity for dairy exports to Europe, the demand for dairy manufacturing skills and competencies is increasing.

The secondary focus of the qualification is on product quality and food safety 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:

- > Communication at NQF Level 3.
- > Mathematical Literacy at NQF Level 3.
- > Natural science and technology principles at NQF level 3.
- > Application of personal safety practices in a manufacturing environment.
- > Application of hygiene and health practices.
- > Knowledge and application of cleaning-in-place (CIP) and cleaning-out-of-place (COP).
- > Knowledge and application of pasteurisation/vaccination/thermisation.
- > Knowledge and application of fat standardization,
- > Knowledge and application of cream separation.
- > Knowledge and comprehension of homogenisation (compulsory **only** for manufacturing processes that require homogenisation).
- > Application of food safety practices.

Recognition of prior learning:

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

Access to the qualification

Access to this qualification is open bearing in mind learning assumed to be in place.

QUALIFICATION RULES

In the compulsory Fundamental component of the qualification, a learner must demonstrate his/her competence in the 20 credits of Communication (First Language), plus the 20 credits of Communication (Second Language), plus the 16 credits of Mathematical Literacy (total of 56 credits).

The Core component of the qualification consists of three unit standards which are equally applicable to all nine different specializations. These three unit Standards contribute a total of 28 credits to the qualification and are compulsory for all learners.

The Elective component of the qualification consists of five groups of unit standards.

The first group entails compulsory unit standards per specialization (A1 - A9). The learner will have to undertake learning towards all the unit standards for the specialization.

The second group entails additional, varied-focus, manufacturing technology unit standards for five of the nine specializations (B1 - B5). The learner will have to undertake learning towards his/her choice of at least one of the unit standards in this elective group, relevant to the specializations for which this group of unit standards are applicable.

The third group entails laboratory analyses unit standards. The learner will have to undertake learning towards one or more unit standard(s) from this group (C), relevant to the specialization, to attain at least 10 credits.

The fourth group entails packaging unit standards. The learner will have to undertake learning towards at least one unit standard from this group (D), relevant to the specialization.

The fifth group (E) entails optional, manufacturing related unit standards. The learner may exercise the option to choose none, any or all of the unit standards per specialization.

The learner must choose one group to specialise in and do all the unit standards listed for that specialisation:

A1. Ripened cheese:

Compulsory unit standards (choose all of the following three unit standards):

- > 123303: "Demonstrate an understanding of the connection between milk constituents, syneresis and moisture control in cheese curd", Level 4, 8 credits.
- > 123307: "Coagulate milk or a dairy mixture for the manufacturing of a fermented product", Level 4, 20 credits.
- > 123287: "Evaluate the sensory quality of cheese", Level 4, 8 credits.
- > **Total: 36 credits.**

A2. Cottage cheese:

Compulsory unit standards (choose all of the following four unit standards):

- > 123303: "Demonstrate an understanding of the connection between milk constituents, syneresis and moisture control in cheese curd" Level 4, 8 credits.
- > 123307: "Coagulate milk or a dairy mixture for the manufacturing of a fermented product", Level 4, 20 credits.
- > 123286: "Evaluate the sensory quality of cottage cheese", Level 4, 5 credits.
- > 123313: "Manufacture smooth or chunky cottage cheese from coagulated milk" Level 4, 25 credits.
- > **Total 58 credits.**

A3. Processed cheese:

Compulsory unit standards (choose all of the following three unit standards):

- > 123351: "Manufacture processed cheese", Level 4, 20 credits.
- > 123300: "Evaluate the sensory quality of processed cheese", Level 4, 5 credits.
- > 123287: "Evaluate the sensory quality of cheese", Level 4, 8 credits.
- > Total: 33 credits.

A4. Fermented dairy products:

Compulsory unit standards (choose both of the following two unit standards):

- > 123307: "Coagulate milk or a dairy mixture for the manufacturing of a fermented product", Level 4, 20 credits.
- > 123305: "Evaluate the sensory quality of fermented dairy products", Level 4, 6 credits.
- > Total: 26 credits.

A5. Dried dairy products:

Compulsory unit standards (choose both of the following two unit standards):

- > 123349: "Evaporate a liquid food product using a falling or rising film evaporator", Level 4, 20 credits.
- > 123288: "Evaluate the sensory quality of dried dairy products", Level 4, 5 credits.
- > Total: 25 credits.

A6. Liquid long life dairy products:

Compulsory unit standard:

- > 123289: "Evaluate the sensory quality of liquid long life dairy products", Level 4, 5 credits.

A7. Condensed milk products:

Compulsory unit standards (choose both of the following two unit standards):

- > 123349: "Evaporate a liquid food product using a falling or rising film evaporator", Level 4, 20 credits.
- > 123296: "Evaluate the sensory quality of condensed milk products", Level 4, 5 credits.
- > 123308: "Perform controlled lactose crystallisation in sweetened condensed milk or concentrated whey", Level 3, 8 credits.
- > Total: 33 credits.

A8. Butter and butter related products:

Compulsory unit standards (choose both of the following two unit standards):

- > 123283: "Evaluate the sensory quality of butter", Level 4, 6 credits.
- > 120240: "Evaluate the sensory quality of pasteurised milk, cream or fruit milk mixtures", Level 3, 5 credits.
- > Total: 11 credits.

A9. Frozen ice cream or ice cream related products:

Compulsory unit standards (choose both of the following two unit standards):

- > 123297: "Manufacture a frozen dairy ice cream or ice cream related product", Level 4, 15 credits.
- > 123290: "Evaluate the sensory quality of frozen dairy ice cream or ice cream related products", Level 4, 5 credits.
- > Total: 20 credits.

The learner must choose at least one unit standard listed for the specialisation chosen by the learner in section A:

B1. Ripened Cheese:

Choose at least one of the following unit standards:

- > 123354: "Manufacture a Cheddar type cheese from coagulated milk.", Level 4, 30 credits.
- > 123311: "Manufacture a Gouda or Grana type cheese from coagulated milk", Level 4, 30 credits.
- > 123358: "Manufacture a Mozzarella type cheese from coagulated milk.", Level 4, 30 credits.

52. Dried dairy products:

Choose at least one of the following unit standards:

- > 123355: "Manufacture a dry food product by means of a roller dryer.", Level 4, 30 credits.
- > 123356: "Manufacture a spray dried food powder from an evaporated mixture.", Level 4, 30 credits.

83. Liquid long life dairy products:

Choose at least one of the following unit standards:

- > 123309: "Manufacture a sterilised food product by means of a retort", Level 4, 20 credits.
- > 123350: "Manufacture a sterilised food product by means of a steri-tower", Level 4, 20 credits.
- > 123310: "Manufacture a UHT food product", Level 4, 20 credits.

84. Condensed milk products:

Choose at least one of the following unit standards:

- > 123309: "Manufacture a sterilised food product by means of a retort", Level 4, 20 credits.
- > 123350: "Manufacture a sterilised food product by means of a steri-tower", Level 4, 20 credits.

B5. Butter and Butter related products:

Choose at least one of the following unit standards:

- > 123346: "Manufacture butter with a continuous butter making machine", Level 4, 25 credits.
- > 123293: "Manufacture butter by means of a batch churn", Level 4, 25 credits.

The Learner must choose unit standards totalling at least 10 credits related to the specialisation chosen:

C. Laboratory Analyses:

Choose a minimum of 10 credits, relevant to the specialization:

- > 120411: "Evaluate the quality of a food product in terms of its pH", Level 3,4 credits.
- > 120241: "Evaluate the quality of a dairy product in terms of its fat content, as determined by the Gerber or Babcock fat determination method", Level 3, 5 credits.
- > 123284: "Evaluate the quality of a food product in terms of its fat content as determined by an ether extraction method", Level 3, 5 credits.
- > 123277: "Evaluate the quality of a food product in terms of its total solids content using an oven drying method", Level 3, 4 credits.
- > 120400: "Evaluate the quality of milk in terms of its solids-non-fat content", Level 3, 4 credits.
- > 120408: "Evaluate the quality of milk in terms of its freezing point", Level 3, 4 credits.
- > 120236: "Evaluate the efficiency of homogenisation of a liquid dairy product", Level 3,4 credits.
- > 123282: "Evaluate the quality of cheese in terms of its salt content", Level 3, 5 credits.
- > 123280: "Evaluate the quality of a food product in terms of its viscosity", Level 3, 4 credits.
- > 123275: "Evaluate the quality of a dairy powder in terms of its moisture content, as indicated by the Toluene distillation method", Level 3, 5 credits.
- > 123291: "Evaluate the quality of instant milk powder in terms of its dispersibility", Level 3 3 credits.
- > 123292: "Evaluate the quality of a dairy powder in terms of its bulk density" Level 3, 3 credits.
- > 123276: "Evaluate the fat-, salt-, moisture- and solids-non-fat-content of butter as indicated by the Kohman test", Level 3, 5 credits.
- > 123285: "Evaluate the extent of saturation of butterfat (in cream or butter), as indicated by its iodine value", Level 4, 4 credits.
- > 123294: "Evaluate the quality of a food product in terms of its Brix-value", Level 3, 3 credits.
- > 123302: "Evaluate the sensory quality of lactic acid fermented cereal-based beverages", Level 4, 6 credits.

D. Packaging:

The learner must Choose the relevant packaging unit standard(s) as required by the chosen specialization:

- > 120258: "Operate and control the forming, filling and hermetic sealing of gable top or brick type cartons for food products", Level 3, 12 credits.
- > 120256: "Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food products", Level 3, 10 credits.
- > 123312: "Operate and control the filling and sealing of cans for food products", Level 3, 12 credits.
- > 123347: "Operate and control the forming and wrapping of a brick or cube shaped food product", Level 3, 10 credits.
- > 120233: "Operate and control the filling and closing of glass or rigid plastic containers for food products", Level 3, 10 credits.
- > 123298: "Operate and control the wrapping and sealing of individual food product units:", Level 3, 8 credits.
- > 123301: "Operate and control the individual wrapping of process cheese portions", Level 3, 12 credits.
- > 123306: "Operate and control the aseptic forming, filling and sealing of containers for food products", Level 3, 18 credits.

E. Optional Manufacturing Technology:

These unit standards are optional and may be chosen in any combination as required by the specialization:

- > 8875: "Enrobe confectionery products", Level 3, 8 credits.
- > 8880: "Manufacture wafer products", Level 4, 20 credits.
- > 123304: "Mould a frozen dairy ice cream or ice cream related product", Level 3, 7 credits.
- > 123353: "Prepare a bulk starter culture for the manufacturing of fermented dairy products or cheese", Level 4, 8 credits.
- > 123307: "Coagulate milk or a dairy mixture for the manufacturing of a fermented product", Level 4, 20 credits.
- > 123308: "Perform controlled lactose crystallisation in sweetened condensed milk or concentrated whey", Level 3, 8 credits.
- > 9068: "Prepare and process oil and aqueous emulsion", Level 4, 15 credits.
- > 123357: "Conduct a hazard analysis critical control point (HACCP) study in a food-handling environment", Level 5, 12 credits.
- > 123295: "Manufacture a beverage by means of lactic acid fermentation of a **cooked** cereal-based mixture", Level 4, 10 credits.

The total credits of the qualification should at all times add up to a minimum of 120.

A learner will be allowed to complete more than one specialisation group, as long as the rules of combination are followed, This will further support the principle of horizontal progression and articulation.

EXIT LEVEL OUTCOMES

Qualifying learners can:

1. Manufacture the relevant dairy product. One of the following dairy products is manufactured:
 - > Ripened cheese.
 - > Cottage cheese.
 - > Processed cheese.
 - > Fermented dairy products.
 - > Dried dairy products.
 - > Liquid long life dairy products.
 - > Condensed milk products.
 - > Butter and butter-related products.
 - > Frozen ice cream and frozen ice cream related dairy products.
2. Pack the relevant manufactured dairy product.
3. Perform quality control practices on manufactured dairy products.

Critical cross-field outcomes:

Critical cross-field outcomes have been addressed by the exit level outcomes as follows:

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 manufacturing, packaging and quality assurance:
 - > Evident in exit level outcomes: 1, 2 and 3.
2. Work effectively with others as a member of a team, group, organisation or community by:
 - > Applying teamwork during manufacturing, packaging and laboratory analysis:
 - > Evident in exit level outcomes: 1, 2 and 3.
 - > Co-ordinating one's work with that of others in the direct surrounding area:
 - > Evident in exit level outcomes: 1, 2 and 3.
3. Organise and manage oneself and one's activities responsibly and effectively by:
 - > Planning one's activities:
 - > Evident in exit level outcomes: 1, 2 and 3.
4. Collect, analyse, organise and critically evaluate information by:
 - > Keeping records of manufacturing, packaging and quality assurance:
 - > Evident in exit level outcomes: 1, 2 and 3.
 - > Analysing samples and evaluating the results:
 - > Evident in exit level outcome: 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 outcomes: 1, 2 and 3.
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 exit level outcomes: 1, 2 and 3.
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 manufacturing, packaging and quality assurance:
 - > Evident in exit level outcomes: 1, 2 and 3.
8. Contribute to the full personal development of each learner and the social and economic development of the society at large by:
 - > Manufacturing of a dairy product:
 - > Evident in exit level outcome: 1.
 - > Packaging of a dairy product:
 - > Evident in exit level outcome: 2.
 - > Performing quality assurance procedures:
 - > Evident in exit level outcome: 3.

ASSOCIATED ASSESSMENT CRITERIA

1:

- > Knowledge of the relevant manufacturing technology is demonstrated according to standard dairy principles.
- > Preparation for the manufacturing of the relevant dairy product is done according to standard operating procedures.
- > The relevant dairy product is manufactured according to standard operating procedures.
- > End of process duties are performed according to standard operating procedures.

2:

- > Knowledge of the relevant packaging process is demonstrated according to standard dairy principles.
- > Preparation for the packaging of the relevant dairy product is done according to standard operating procedures.
- > The relevant dairy product is packed according to standard operating procedures.
- > End of packaging duties are performed according to standard operating procedures.

3:

- > Knowledge and comprehension of microbiological principles and its application in a dairy manufacturing environment is demonstrated using standard dairy practices as examples.
- > Quality control practices are performed during dairy product analysis according to standard operating procedures.
- > Quality assurance procedures are monitored and controlled according to standard operating procedures.
- > The sensory and compositional analysis of the relevant dairy product is performed according to standard dairy principles.

Integrated assessment:

The applied competence (practical, foundational and reflexive competencies) of this qualification will be achieved if a learner is able to manufacture and pack a dairy product and perform the relevant quality control procedures.

The identifying and solving of problems, team work, organising oneself, 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.

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, three qualifications exist at Level 4 for Dairy Manufacturing, namely:

- > National Certificate in Dairy Manufacturing (Process Skills) with optional strands in Product Safety and People Skills.
- > National Certificate in Dairy Manufacturing with optional strands In Product Safety, People Skills and Computing Skills.
- > National Certificate in Dairy Manufacturing (Laboratory Technology).

The first of the above-mentioned qualifications was modelled against this qualification. The Level 4 National Certificate in Dairy Manufacturing (Process Skills) from the NZQA contains a minimum of 50 credits and can be extended with optional strands in product safety and people skills to 74 credits. It is aimed at experienced employees working with limited supervision and recognises the ability to apply and monitor a range of on-the-job skills. The qualification is structured with a compulsory generic section and an elective section that provides options covering general and specialist competencies required for unique products and technologies.

Compulsory generic standards cover the following competencies:

- > Implementation of quality systems.
- > People skills.
- > Dairy processing.
- > Dairy product safety and risk management.
- > Dairy workplace health and safety.

Elective standards cover the following competencies:

- > Elective A:
 - > Facilitation skills.
 - > Personal management.
 - > Statistics.
 - > Hazard Analysis Critical Control Points (**HACCP**).
 - > Problem solving on faulty equipment.

- > Elective B:
 - > Training and development.
 - > Workplace assessment.
 - > Working with temperature controlled stock,
 - > Implementation of environmental programmes.
 - > People management.

Thus, the New Zealand qualification compares well with the South African qualification, although product specialisation in the former is not defined in such detail as in the South African qualification. The New Zealand qualification also has a strong focus on people skills and management, which is not the case in the South African qualification. These skills are addressed in the Level 5 South African qualification in First Line Manufacturing Management.

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.

The major difference between the UK qualification (Level 3) and this South African qualification (Level 4) is in the Level, i.e. supervisory and entry-level management competencies are addressed at Level 3 in the UK qualification, but in the South African qualification it is addressed at Level 4. However, the latter is in line with the SAQA level descriptors and provides a clear learning pathway in the Dairy Industry.

The AQF from Australia contains a qualification (Certificate IV) in Food Processing, which consists of specialist, core, imported, multi-sector specialist and sector specialist units. For the dairy sector, specialist units include the following competencies, but only on Level 2:

- > Butter churning.
- > Continuous freezing.
- > Butter oil processing.
- > Curd production and cutting.
- > Cooling and hardening.
- > Cheese pressing and moulding.
- > Fermentation processes.
- > Holding and storage processes.
- > Membrane processes.

In the South African qualification, most of the above processes are addressed on Level 4, while the Australian Certificate IV qualification focuses more on the following skills:

- > Assessment of food safety programmes.
- > Conducting food safety audits.
- > Control of food safety hazards.
- > Establishment of process capability.
- > Management.
- > Optimising processes.
- > Planning and designing for quality management.

- > Statistics.
- > Application of engineering principles.
- > Implementing and maintaining quality management systems.

Most of these skills are addressed in the Level 5 South African qualification in First Line Manufacturing Management.

The SVQ from Scotland contains a qualification in Food and Drink Manufacturing Operations at Level 4. It consists of mandatory and optional units outlined below:
Mandatory units:

- > Managing food and drink manufacturing projects.
- > Contributing to improvements in food and drink manufacturing operations.
- > Auditing against standards.
- > Development of resources.
- > Maintaining health, safety and hygiene.

Optional units:

- > Managing the commissioning and handover of a food and drink manufacturing plant.
- > Product development.
- > Developing a food and drink manufacturing process.
- > Development of people.
- > Managing the use of physical resources.
- > Managing the use of financial resources.
- > Implementing a quality assurance system.

Very little product manufacturing (technical and operational) skills are found in the Level 4 Scottish qualification, as is the case in the 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.

In conclusion, it can be stated that in terms of the qualifications analysed in this study, this qualification is justified as it contains similar essential core competencies to those offered internationally in dairy manufacturing.

ARTICULATION OPTIONS

This qualification articulates horizontally within its different specialization groups, namely:

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

As well as with the following qualifications:

- > 20206 - Further Education and Training Certificate: Food and Beverage Manufacturing Technology: Spray Dried Food Product Technologist - NQF Level 4
- > 48915 - Further Education and Training Certificate: Manufacturing and Assembly Operations Supervision - NQF Level 4.

Vertical articulation exists with the following qualification:

- > 49743 - National Certificate: First Line Manufacturing Management - NQF Level 5.

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 ETQAs 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 needs well-developed interpersonal skills, as well as subject matter and assessment experience.

> The applicant should have a similar qualification than this one at NQF Level 5 or higher, with a minimum of 12 months field experience after he/she has completed the qualification.

NOTES

N/A

UNIT STANDARDS

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

Core	1 19796 Monitor and control quality assurance procedures in a food or sensitive consumer product environment	Level 4	8	Recommended
Core	119801 Demonstrate an understanding of microbiological principles and its application in a food handling environment	Level 5	12	Recommended
				Comment
Elective	8875 Enrobe confectionery products	Level 3	8	Reregistered
Elective	120233 Operate and control the filling and closing of glass or rigid plastic containers for food products	Level 3	10	Registered
Elective	120236 Evaluate the efficiency of homogenisation of a liquid dairy product	Level 3	4	Registered
Elective	120241 Evaluate the quality of a dairy product in terms of its fat content as determined by the Gerber or Babcock fat determination method	Level 3	5	Registered
Elective	120256 Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food products	Level 3	10	Registered
Elective	120258 Operate and control the forming, filling and hermetic sealing of gable top or brick type cartons for food products	Level 3	12	Registered
Elective	120400 Evaluate the quality of milk in terms of its solids-non-fat content	Level 3	4	Recommended
Elective	120408 Evaluate the quality of milk in terms of its freezing point	Level 3	4	Recommended
Elective	120411 Evaluate the quality of a food product in terms of its pH	Level 3	4	Recommended
Elective	123275 Evaluate the quality of a dairy powder in terms of its moisture content, as indicated by the Toluene distillation method	Level 3	5	Draft - Prep for P Comment
Elective	123276 Evaluate the fat, salt, moisture- and solids-non-fat content of butter as indicated by the Kohn test	Level 3	5	Draft - Prep for P Comment
Elective	123277 Evaluate the quality of a food product in terms of its total solids content using an oven drying method	Level 3	4	Draft - Prep for P Comment

Elective	123280 Evaluate the quality of a food product in terms of its viscosity	Level 3	4	Draft - Prep for P Comment
Elective	123282 Evaluate the quality of cheese in terms of its salt content	Level 3	5	Draft - Prep for P Comment
Elective	123291 Evaluate the quality of instant milk powder in terms of its dispersibility	Level 3	3	Draft - Prep for P Comment
Elective	123292 Evaluate the quality of a dairy powder in terms of its bulk density	Level 3	3	Draft - Prep for P Comment
Elective	123294 Evaluate the quality of a food product in terms of its Brix-value	Level 3	3	Draft - Prep for P Comment
Elective	123298 Operate and control the wrapping and sealing of individual food product units	Level 3	8	Draft - Prep for P Comment
Elective	123301 Operate and control the individual wrapping of process cheese portions	Level 3	12	Draft - Prep for P Comment
Elective	123304 Mould a frozen dairy ice cream or ice cream related product	Level 3	7	Draft - Prep for P Comment
Elective	123306 Operate and control the aseptic forming, filling and sealing of containers for food products	Level 3	18	Draft - Prep for P Comment
Elective	123308 Perform controlled lactose crystallisation in sweetened condensed milk or concentrated whey	Level 3	8	Draft - Prep for P Comment
Elective	123312 Operate and control the filling and sealing of cans for food products	Level 3	12	Draft - Prep for P Comment
Elective	123347 Operate and control the forming and wrapping of a brick or cube shaped food product	Level 3	10	Draft - Prep for P Comment
Elective	8880 Manufacture wafer products	Level 4	20	Reregistered
Elective	9068 Prepare and process an aqueous and oil emulsion	Level 4	15	Reregistered
Elective	123283 Evaluate the sensory quality of butter	Level 4	6	Draft - Prep for P Comment
Elective	123285 Evaluate the extent of saturation of butterfat (in cream or butter), as indicated by its iodine value	Level 4	4	Draft - Prep for P Comment
Elective	123286 Evaluate the sensory quality of cottage cheese	Level 4	5	Draft - Prep for P Comment
Elective	123287 Evaluate the sensory quality of cheese	Level 4	8	Draft - Prep for P Comment
Elective	123288 Evaluate the sensory quality of dried dairy products	Level 4	5	Draft - Prep for P Comment
Elective	123289 Evaluate the sensory quality of liquid long life dairy products	Level 4	5	Draft - Prep for P Comment
Elective	123290 Evaluate the sensory quality of frozen dairy ice cream or ice cream related products	Level 4	5	Draft - Prep for P Comment
Elective	123293 Manufacture butter by means of a batch chum	Level 4	25	Draft - Prep for P Comment
Elective	123295 Manufacture a beverage by means of lactic acid fermentation of a cooked cereal-based mixture	Level 4	10	Draft - Prep for P Comment
				Comment
Elective	123297 Manufacture a frozen dairy ice cream or ice cream related product	Level 4	15	Draft - Prep for P Comment
Elective	123300 Evaluate the sensory quality of processed cheese	Level 4	5	Draft - Prep for P Comment
Elective	123303 Demonstrate an understanding of the connection between milk constituents, syneresis and moisture control in cheese curd	Level 4	8	Draft - Prep for P Comment
				Comment
Elective	123307 Coagulate milk or a dairy mixture for the manufacturing of a fermented product	Level 4	20	Draft - Prep for P Comment
Elective	123309 Manufacture a sterilised food product by means of a retort	Level 4	20	Draft - Prep for P Comment
Elective	123310 Manufacture a UHT food product	Level 4	20	Draft - Prep for P Comment
Elective	123311 Manufacture a Gouda or Grana type cheese from coagulated milk	Level 4	30	Draft - Prep for P Comment
Elective	123313 Manufacture smooth or chunky cottage cheese from coagulated milk	Level 4	25	Draft - Prep for P Comment
Elective	123346 Manufacture butter with a continuous butter making machine	Level 4	25	Draft - Prep for P Comment
Elective	123349 Evaporate a liquid food product using a falling or rising film evaporator	Level 4	20	Draft - Prep for P Comment

Elective	123350 Manufacture a sterilised food product by means of a steri-tower	Level 4	20	Draft - Prep for P Comment
Elective	123351 Manufacture processed cheese	Level 4	20	Draft - Prep for P Comment
Elective	123353 Prepare a bulk starter culture for the manufacturing of fermented dairy products or cheese	Level 4	8	Draft - Prep for P Comment
Elective	123354 Manufacture a Cheddar type cheese from coagulated milk	Level 4	30	Draft - Prep for P Comment
Elective	123355 Manufacture a dry food product by means of a roller dryer	Level 4	30	Draft - Prep for P Comment
Elective	123356 Manufacture a spray dried food powder from an evaporated mixture	Level 4	30	Draft - Prep for P Comment
Elective	123358 Manufacture a Mozzarella type cheese from coagulated milk	Level 4	30	Draft - Prep for P Comment
Elective	123357 Conduct a hazard analysis Critical control point (HACCP) study in a food handling environment	Level 5	12	Draft - Prep for P Comment
Fundamental	119457 Interpret and use information from texts	Level 3	5	Recommended
Fundamental	119465 Write/present/sign texts for a range of communicative contexts	Level 3	5	Recommended
Fundamental	119467 Use language and communication in occupational learning programmes	Level 3	5	Recommended
Fundamental	119472 Accommodate audience and context needs in oral/sign ed communication	Level 3	5	Recommended
Fundamental	7468 Use mathematics to investigate and monitor the financial aspects of personal, business, national and International issues	Level 4	6	Reregistered
Fundamental	9015 Apply knowledge of statistics and probability to critically interrogate and effectively communicate findings on life related problems	Level 4	6	Reregistered
Fundamental	9016 Represent and calculate shape and motion in 2- and 3-dimensional space in different contexts	Level 4	4	Reregistered
Fundamental	119459 Write/present/sign for a wide range of contexts	Level 4	5	Recommended
Fundamental	1 462 Engage in sustained communication and evaluate spoken/sign ed texts	Level 4	5	Recommended
Fundamental	119469 Read/view, analyse and respond to a variety of texts	Level 4	5	Recommended
Fundamental	119471 Use language and communication in occupational learning programmes	Level 4	5	Recommended



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

1

SAQA US ID	UNIT STANDARD TITLE		
123293	Manufacture butter by means of a batch churn		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	25	Level 4	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the manufacturing of butter with a batch churn.

SPECIFIC OUTCOME 2

Prepare to manufacture fresh butter with a batch churn.

SPECIFIC OUTCOME 3

Manufacture fresh butter with a batch churn.

SPECIFIC OUTCOME 4

Perform end of manufacturing procedures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

2

Manufacture a beverage by means of lactic acid fermentation of a cooked cereal-based mixture

SAQA US ID	UNIT STANDARD TITLE		
123295	Manufacture a beverage by means of lactic acid fermentation of a cooked cereal-based mixture		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	10	Level 4	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the manufacturing of a lactic acid fermented cereal-based beverage.

SPECIFIC OUTCOME 2

Prepare to manufacture a lactic acid fermented cereal-based beverage.

SPECIFIC OUTCOME 3

Manufacture a lactic acid fermented cereal-based beverage.

SPECIFIC OUTCOME 4

Perform end of fermentation procedures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

3

Manufacture a frozen dairy ice cream or ice cream related product

SAQA US ID	UNIT STANDARD TITLE		
123297	Manufacture a frozen dairy ice cream or ice cream related product		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
UNITS	TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	15	Level 4	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the manufacturing of frozen dairy ice cream or ice cream related products.

SPECIFIC OUTCOME 2

Prepare to manufacture a frozen dairy ice cream or ice cream related product.

SPECIFIC OUTCOME 3

Manufacture a frozen dairy ice cream or ice cream related product prior to packaging.

SPECIFIC OUTCOME 4

Perform end of manufacturing procedures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

4

SAQA US ID	UNIT STANDARD TITLE		
123298	Operate and control the wrapping and sealing of individual food product units		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Manufacturing and Assembly	
SET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	8	Level 3	Regular



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

5

Operate and control the individual wrapping of process cheese portions

SAQA US ID	UNIT STANDARD TITLE		
123301	Operate and control the individual wrapping of process cheese portions		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
UNIT STANDARD TYPE	ORGANISING 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 individual wrapping of process cheese portions.

SPECIFIC OUTCOME 2

Prepare for wrapping of process cheese portions.

SPECIFIC OUTCOME 3

Wrap process cheese portions individually.

SPECIFIC OUTCOME 4

Perform end of wrapping procedures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

6

Evaluate the sensory quality of lactic acid fermented cereal-based beverages

SAQA US ID	UNIT STANDARD TITLE		
123302	Evaluate the sensory quality of : acid fermented : e : d l e v a g e s		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	6	Level 4	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the sensory quality of lactic acid fermented cereal-based beverages.

SPECIFIC OUTCOME 2

Prepare for the determination of the sensory quality of a lactic acid fermented cereal-based beverage.

SPECIFIC OUTCOME 3

Determine the sensory quality of a lactic acid fermented cereal-based beverage.

SPECIFIC OUTCOME 4

Report on the sensory quality of the lactic acid fermented cereal-based beverage.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

7

SAQA US ID	UNIT STANDARD TITLE		
123303	Demonstrate an understanding of the connection between milk constituents, syneresis and moisture control in cheese curd		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
.Regular	Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	8	Level 4	.Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the role of milk constituents during cheese manufacturing.

SPECIFIC OUTCOME 2

Demonstrate an understanding of syneresis in cheese curd.

SPECIFIC OUTCOME 3

Demonstrate an understanding of the mineral content of cheese curd and its significance during cheese manufacturing.

SPECIFIC OUTCOME 4

Demonstrate an understanding of moisture control in cheese curd.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

8

SAQA US ID	UNIT STANDARD TITLE		
123304	Mould a frozen dairy ice cream or ice cream related product		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
UNIT STANDARD TYPE	ORGANISING 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 moulding frozen dairy ice cream or ice cream related products.

SPECIFIC OUTCOME 2

Prepare for moulding a frozen dairy ice cream or ice cream related product.

SPECIFIC OUTCOME 3

Mould a frozen dairy ice cream or ice cream related product.

SPECIFIC OUTCOME 4

Perform end of moulding procedures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

9

Evaluate the sensory quality of fermented dairy products

SAQA US ID	UNIT STANDARD TITLE		
123305	Evaluate the sensory quality of fermented dairy products		
SGB NAME		ORGANISING FIELD ID	PROVIDER NAME
SGB Food Manufacturing		6	
UNIT STANDARD TYPE		ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	6	Level 4	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the sensory quality of fermented dairy products.

SPECIFIC OUTCOME 2

Prepare for the determination of the sensory quality of a fermented dairy product.

SPECIFIC OUTCOME 3

Determine the sensory quality of a fermented dairy product.

SPECIFIC OUTCOME 4

Report on the sensory quality of the fermented dairy product.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

10

SAQA US ID	UNIT STANDARD TITLE		
123306	Operate and control the aseptic forming, filling and sealing of containers for food products		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	18	Level 3	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of aseptic packaging.

SPECIFIC OUTCOME 2

Prepare to pack a food product aseptically in containers.

SPECIFIC OUTCOME 3

Pack a food product aseptically in containers.

SPECIFIC OUTCOME 4

Perform end of packaging procedures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

11

SAQA US ID	UNIT STANDARD TITLE		
123307	Coagulate milk or a dairy mixture for the manufacturing of a fermented product		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	20	Level 4	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of starter cultures for fermented dairy product manufacturing.

SPECIFIC OUTCOME 2

Demonstrate an understanding of the mechanism of coagulation during fermented dairy product manufacturing.

SPECIFIC OUTCOME 3

Demonstrate an understanding of the methods of coagulation for fermented dairy product manufacturing.

SPECIFIC OUTCOME 4

Prepare for coagulation of milk or a dairy mixture.

SPECIFIC OUTCOME 5

Coagulate milk or a dairy mixture for fermented dairy product manufacturing.

SPECIFIC OUTCOME 6

Perform end of coagulation procedures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

12

SAQA US ID	UNIT STANDARD TITLE		
123308	Perform controlled lactose crystallisation in sweetened condensed milk or concentrated whey		
SGB NAME		ORGANISING FIELD ID	PROVIDER NAME
SGB Food Manufacturing		6	
UNIT STANDARD TYPE		ORGANISING 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 2

Prepare to crystallise sweetened condensed milk or concentrated whey.

SPECIFIC OUTCOME 3

Crystallise sweetened condensed milk or concentrated whey.

SPECIFIC OUTCOME 4

Perform end of crystallisation procedures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

13

SAQA US ID	UNIT STANDARD TITLE	
123309	Manufacture a sterilised food product by means of a retort	
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME
SGB Food Manufacturing	6	
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION
Regular	Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND (CREDITS)	NQF LEVEL	UNIT STANDARD TYPE
Undefined 20	4	

SPECIFIC OUTCOME 1

Demonstrate an understanding of the manufacturing of sterilised food products.

SPECIFIC OUTCOME 2

Prepare to manufacture a sterilised food product by the application of a retort.

SPECIFIC OUTCOME 3

Manufacture a sterilised food product by the application of a retort.

SPECIFIC OUTCOME 4

Perform end of manufacturing procedures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

14

Manufacture a UHT food product

SAQA US ID	UNIT STANDARD TITLE		
123310	Manufacture a UHT food product		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	20	Level 4	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the manufacturing of UHT products.

SPECIFIC OUTCOME 2

Prepare to manufacture a UHT product.

SPECIFIC OUTCOME 3

Manufacture a UHT product prior to packaging.

SPECIFIC OUTCOME 4

Perform end of manufacturing procedures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

15

Manufacture a Gouda or Grana type cheese from coagulated milk

SAQA US ID	UNIT STANDARD TITLE		
12331 1	Manufacture a Gouda or Grana type cheese from coagulated milk		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	30	Level 4	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the manufacturing of Gouda or Grana type cheese.

SPECIFIC OUTCOME 2

Prepare for the manufacturing of a Gouda or Grana type cheese.

SPECIFIC OUTCOME 3

Manufacture a Gouda or Grana type cheese.

SPECIFIC OUTCOME 4

Perform end of manufacturing procedures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

16

Operate and control the filling and sealing of cans for food products

SAQA US ID	UNIT STANDARD TITLE		
123312	Operate and control the filling and sealing of cans for food products		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
UNIT STANDARD TYPE	ORGANISING 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 food canning.

SPECIFIC OUTCOME 2

Prepare to can a food product.

SPECIFIC OUTCOME 3

Can a food product.

SPECIFIC OUTCOME 4

Perform end of canning procedures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

17

Manufacture smooth or chunky cottage cheese from coagulated milk

123313	Manufacture smooth or chunky cottage cheese from coagulated milk		
SGB NAME		ORGANISING FIELD ID	PROVIDER NAME
SGB Food Manufacturing		6	
UNIT STANDARD TYPE		ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	25	Level 4	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the manufacturing of smooth or chunky cottage cheese.

SPECIFIC OUTCOME 2

Prepare for the manufacturing of smooth or chunky cottage cheese.

SPECIFIC OUTCOME 3

Manufacture smooth or chunky cottage cheese.

SPECIFIC OUTCOME 4

Perform end of manufacturing procedures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

18

SAQA US ID	UNIT STANDARD TITLE		
123346	Manufacture butter with a continuous butter making machine		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	25	Level 4	.Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the manufacturing of butter with a continuous process.

SPECIFIC OUTCOME 2

Prepare to manufacture fresh butter with a continuous butter making machine.

SPECIFIC OUTCOME 3

Manufacture fresh butter with a continuous butter making machine.

SPECIFIC OUTCOME 4

Perform end of manufacturing procedures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

19

SAQA US ID	UNIT STANDARD TITLE		
123347	Operate and control the forming and wrapping of a brick or cube shaped food product		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
UNIT STANDARD TYPE	ORGANISING 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 forming and wrapping a brick or cube-shaped food product.

SPECIFIC OUTCOME 2

Prepare for forming and wrapping a brick or cube-shaped food product.

SPECIFIC OUTCOME 3

Form and wrap a brick or cube-shaped food product.

SPECIFIC OUTCOME 4

Perform end of forming and wrapping procedures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

20

Demonstrate an understanding of the functional components of milk

SAQA US ID	UNIT STANDARD		
123348	Demonstrate an understanding of the functional components of milk		
SGB NAME	ORGANISING FIELD	PROVIDER NUMBER	
Food and Beverage Manufacturing	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	8	Level 5	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the physical-chemical nature of milk components.

SPECIFIC OUTCOME 2

Demonstrate an understanding of the chemical composition of milk proteins, fat and lactose.

SPECIFIC OUTCOME 3

Demonstrate an understanding of the nutritional and health aspects of milk proteins, fat and lactose.

SPECIFIC OUTCOME 4

Demonstrate an understanding of the functional properties of milk proteins, fat and lactose.

SPECIFIC OUTCOME 5

Demonstrate an understanding of the changes in milk proteins, fat and lactose that influence the quality of dairy products.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

21

Evaporate a liquid food product using a falling or rising film evaporator

SAQA US ID	UNIT STANDARD TITLE		
123349	Evaporate a liquid food product using a falling or rising film evaporator		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
UNIT STANDARD TYPE	ORGANISING FIELD ID	PROVIDER NAME	SUBFIELD DESCRIPTION
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	20	Level 4	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of evaporation in a falling or rising film evaporator.

SPECIFIC OUTCOME 2

Prepare to evaporate a liquid food product.

SPECIFIC OUTCOME 3

Evaporate a liquid food product by means of a falling or rising film evaporator.

SPECIFIC OUTCOME 4

Perform end of evaporation procedures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

22

Manufacture a sterilised food product by means of a steri-tower

SAQA US ID	UNIT STANDARD TITLE		
123350	Manufacture a sterilised food product by means of a steri-tower		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	20	Level 4	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the manufacturing of sterilised food products.

SPECIFIC OUTCOME 2

Prepare to manufacture a sterilised food product by the application of a steri-tower.

SPECIFIC OUTCOME 3

Manufacture a sterilised food product by the application of a steri-tower.

SPECIFIC OUTCOME 4

Perform end of manufacturing procedures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

23

Manufacture processed cheese

SAQA US ID	UNIT STANDARD TITLE		
123351	Manufacture processed cheese		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	20	Level 4	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the manufacturing of processed cheese.

SPECIFIC OUTCOME 2

Prepare to manufacture processed cheese.

SPECIFIC OUTCOME 3

Manufacture processed cheese prior to packaging.

SPECIFIC OUTCOME 4

Perform end of manufacturing procedures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

24

SAQA US ID	UNIT STANDARD TITLE		
123353	Prepare a bulk starter culture for the manufacturing of fermented dairy products or cheese		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	8	Level 4	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of starter culture preparation.

SPECIFIC OUTCOME 2

Prepare for starter culture preparation.

SPECIFIC OUTCOME 3

Prepare a bulk starter culture from a stock culture.

SPECIFIC OUTCOME 4

Perform end of starter preparation duties.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

25

Manufacture a Cheddar type cheese from coagulated milk

SAQA US ID	UNIT STANDARD TITLE		
25	Manufacture a Cheddar type cheese from coagulated milk		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	30	Level 4	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the manufacturing of a Cheddar type cheese.

SPECIFIC OUTCOME 2

Prepare to manufacture a Cheddar type cheese.

SPECIFIC OUTCOME 3

Manufacture a Cheddar type cheese.

SPECIFIC OUTCOME 4

Perform end of manufacturing procedures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

26

SAQA US ID	UNIT STANDARD TITLE		
123355	Manufacture a dry food product by means of a roller dryer		
3	ME	GANI	FIELD ID
SGB Food Manufacturing			
UNIT STANDARD TYPE	ORGANISING	FIELD DESCRIPTION	SUBFIELD DESCRIPTION
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	30	Level 4	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the manufacturing of a dry food product by means of a roller dryer.

SPECIFIC OUTCOME 2

Prepare to manufacture dry food product by means of a roller dryer.

SPECIFIC OUTCOME 3

Dry an evaporated mixture by means of a roller dryer.

SPECIFIC OUTCOME 4

Perform end of drying procedures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

27

Manufacture a spray dried food powder from an evaporated mixture

SAQA US ID	UNIT STANDARD TITLE		
123356	Manufacture a spray dried food powder from an evaporated mixture		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	30	Level 4	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the manufacturing of a spray dried food powder.

SPECIFIC OUTCOME 2

Prepare to manufacture a food powder by means of a spray dryer.

SPECIFIC OUTCOME 3

Dry an evaporated mixture by means of a spray dryer.

SPECIFIC OUTCOME 4

Perform end of drying procedures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

28

Conduct a hazard analysis critical control point (HACCP) study in a food handling environment

SAQA US ID	UNIT STANDARD TITLE		
123357	Conduct a hazard analysis critical control point (HACCP) study in a food handling environment		
SGB NAME		ORGANISING FIELD ID	PROVIDER NAME
SGB Food Manufacturing		6	
UNIT STANDARD TYPE		ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION
Regular		Manufacturing Engineering Technology	Manufacturing and Assembly
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	12	Level 5	Regular

SPECIFIC OUTCOME 1

Plan and prepare for a HACCP study.

SPECIFIC OUTCOME 2

Conduct a HACCP study.

SPECIFIC OUTCOME 3

Review a HACCP plan.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

29

Manufacture a Mozzarella type cheese from coagulated milk

SAQA US ID	UNIT STANDARD TITLE		
123358	Manufacture a Mozzarella type cheese from coagulated milk		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Food Manufacturing	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	30	level 4	Regular

SPECIFIC OUTCOME 1

Demonstrate an understanding of the manufacturing of **Mozzarella** type cheese.

SPECIFIC OUTCOME 2

Prepare for the manufacturing of a **Mozzarella** type cheese.

SPECIFIC OUTCOME 3

Manufacture a **Mozzarella** type cheese.

SPECIFIC OUTCOME 4

Perform end of manufacturing procedures.