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Government Gazette Staatskoerant

REPUBLIC OF SOUTH AFRICA
REPUBLIEK VAN SUID-AFRIKA

Vol. 484

Pretoria, 7 October 2005
Oktober 2005

No. 28097



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

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**THE GOVERNMENT PRINTING WORKS****PUBLICATIONS DIVISION**

NB: The Publications Division of the Government Printing Works will be relocating to its new premises within the:

**MASADA BUILDING at 196 PROES STREET, PRETORIA
(i.e. CORNER OF PAUL KRUGER AND PROES STREETS)
with effect from 3 May 2005.**

For enquiries and information:

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GOVERNMENT NOTICES

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

No. 979

7 October 2005



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

Translation, Interpreting and Language Editing

Registered by Organising Field 04, Communication Studies and Language, 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.saga.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 Translation, Interpreting and Language Editing** and addressed to

The Director: Standards Setting and Development
SAQA

Attention: Mr. E Brown

Postnet Suite 248

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DUGMORE MPHUTHING

ACTING DIRECTOR: STANDARDS SETTING AND DEVELOPMENT



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:

National Diploma: Court Interpreting

SAQA QUAL ID	QUALIFICATION TITLE		
50023	National Diploma: Court Interpreting		
SGB NAME	NSB 04	PROVIDER NAME	
SGB Translation, Interpreting and Language Editing	Communication Studies and Language		
QUAL TYPE	FIELD	SUBFIELD	
National Diploma	Communication Studies and Language	Communication Studies	
ABET BAND	MINIMUM CREDITS	NQF LEVEL	QUALIFICATION CLASS
Undefined	240	Level 5	Regular-Unit Stds Based

PURPOSE AND RATIONALE OF THE QUALIFICATION

Purpose:

The purpose of this qualification is to improve the professional status of court interpreters by obtaining recognised professional competence. Credited learners will be able to render specialised interpreting services within the South African legal system, professionally and ethically. A National Diploma: Court Interpreting will allow credited learners to contribute to social and economic transformation by ensuring human rights in the court setting and equal access to a fair trial in terms of effective communication.

Interpreting dialogue from source language to target language, and vice versa, means that qualified learners will be capable of:

- > Applying written and oral communication strategies in a legal interpreting context.
- > Applying interpreting skills within a legal interpreting environment.
- > Demonstrate knowledge and understanding of law to solve interpreting problems within the South African legal context.
- > Demonstrate relationship-building skills within a legal environment.
- > Exercise ethical conduct, values and professionalism in a legal interpreting context.
- > Apply basic knowledge and skills to effectively manage a business within a legal interpreting environment.

Rationale:

The individual's right to be tried in his/her own language is enshrined in the Constitution. In a courtroom where the languages of the court still exclude the vast majority of South Africans, this results in interpreting services having to be provided for speakers of the indigenous African languages (roughly seventy-five per cent of the population). The complexity of the court interpreting process demands of the court interpreter to integrate interpreting, legal, and social knowledge, skills and values. Despite the enormity of the court interpreting task, court interpreters have been marginalised, not only in terms of professional remuneration but also academic training.

A National Diploma: Court Interpreting (NQF Level 5) will allow credited learners to become professionals employed in the lower courts and tribunals alongside their legal colleagues and, as such, to facilitate access to information, mutual participation and protection of human rights, whilst improving their own earning ability.

Additional roles that qualified learners will be able to fulfil, include interpreting in Council for Conciliation, Mediation and Arbitration cases, disciplinary hearings and telephone interpreting.

RECOGNIZE PREVIOUS LEARNING?

Y

LEARNING ASSUMED TO BE IN PLACE

It is assumed that learners have already attained the following competencies:

- > FETC or similar at NQF Level 4.
- > Communication skills at NQF Level 4.
- > Numeracy skills at NQF Level 4.

Recognition of prior learning (RPL)

Learners who have met the requirements of any Unit Standard in this qualification may apply for recognition of prior learning to the relevant Education and Training Quality Assurance body (ETQA). The applicant will be assessed against the specific outcomes and with the assessment criteria for the relevant Unit Standard or Unit Standards. A qualification will be awarded should a candidate demonstrate that all the Unit Standards outcomes have been attained.

Access to the qualification

- > Further Education and Training Certificate at level 4.

QUALIFICATION RULES

- > The Fundamental Component Unit Standards (51 credits) are compulsory.
- > All the Core Component Unit Standards are compulsory (163 credits).
- > For the Elective Component, learners are required to attain a minimum of 26 credits.

EXIT LEVEL OUTCOMES

1. Apply written and oral communication strategies in a legal interpreting context.
2. Apply interpreting skills within a legal interpreting environment.
3. Demonstrate knowledge and understanding of law to solve interpreting problems within the South African legal context.
4. Demonstrate relationship-building skills within a legal environment.
5. Exercise ethical conduct, values and professionalism in a legal interpreting context.
6. Apply basic knowledge and skills to effectively manage a business within a legal interpreting environment.

Critical cross-field outcomes:

In particular when assessing the applied competence (practical, foundational and reflexive competencies) of this qualification, assessors must assess the ability of the learner to:

- > Identify and solve problems in which responses display that responsible decisions, using critical thinking, have been made.
- > Work effectively with others as a member of a team, organisation or legal community.
- > Organise and manage the learner and the learner's activities responsibly and effectively.
- > Collect, analyse, organise and critically evaluate information.
- > Communicate effectively using visual and language skills in the modes of written and oral presentation.

- > Demonstrate an understanding of the world as a set of related systems by recognising that solving of interpreting problems in the legal context takes place across fields/disciplines.
- > Demonstrate an awareness of the learner's role in participating as a responsible citizen in the life of local, national and global communities.
- > Demonstrate an awareness of the learner's role in generating sensitivity to diversity and culture across a range of social contexts.

Examples of specific assessment of the above Critical Cross-Field Outcomes may be described in each Unit Standard.

ASSOCIATED ASSESSMENT CRITERIA

1.
 - > Identified communication strategies are explained and distinguished in terms of their advantages and disadvantages.
 - > Selected communication strategies are evaluated in terms of their various uses in a court interpreting environment.
 - > The uses of communication strategies are applied and demonstrated in a controlled situation.
 - > Personal glossaries and lists are prepared to enable fluent interpreting.
2.
 - > Recalled messages from memory are analysed in terms of communicative content of source language message.
 - > Messages are analysed and reformulated for short consecutive interpreting.
 - > Fit-for-purpose interpreting modes are justified in terms of interaction type and context.

Range: Short consecutive interpreting mode, long consecutive interpreting mode, chuchotage, sight-interpreting and summary interpreting mode.

 - > Messages are organised into a logical structure to convey communicative intent of sender and meet target language norms.
 - > Reformulated target messages are assessed and justified with regard to communicative intent of source message and expectations of target audience.
 - > Produced messages reflect intended communicative intent of source message.
3.
 - > Identified sources of law are explained for selection of terminology and phraseology for interpreting purposes.
 - > Knowledge is demonstrated of the terminology specific to the legal and law enforcement system.
 - > Identified legal terms and concepts which have no equivalents in the target language are explained consistent with the communicative content of the source language message and target language norms.
 - > Selected terminology and phraseology are explained in terms of communicative intent of source message.
4.
 - > Power and status dynamics are identified in order to manage the interpreting context and the transfer of the communicative intent of the source message.
 - > Selected management strategies are applied with regard to power and status differences and interaction between parties.

Range: Turn-taking, conversational maxims, politeness strategies, court etiquette.

 - > Identified stress management skills are compared in terms of applicability to personal and work situations.
5.
 - > The contextual norms and expectations associated with professional practice within a legal interpreting setting are identified.
 - > The role of the interpreter as cultural mediator is clarified in terms of current interpreting theory.
 - > The contextual norms and expectations of the legal interpreting setting are adhered to.
 - > The conduct of the interpreter is evaluated in terms of international interpreting codes of ethics and

professional practice.

6.

> Identified general managerial processes are adapted for institutional procedures of legal interpreting contexts.

Range: Managerial processes such as planning, organising, leading and controlling.

> Identified management tasks are demonstrated in terms of a case study.

Range: Management tasks such as decision-making, communicating, controlling, disciplining, motivating, coordinating, evaluating and delegating.

Integrated assessment

Applied competence (practical, foundational and reflexive competencies with regard to interpreting, legal and social knowledge and skills) of this qualification will be achieved if a candidate can integrate the various unit standard outcomes to be able to perform as an interpreter in legal settings under simulated courtroom conditions. This will require learners to interpret between at least two languages.

Ongoing formative assessment is required so that learners are given feedback on their progress in the achievement of specific learning outcomes. Summative assessment is concerned with the judgement of the learning in relation to the exit level outcomes of the qualification, which tests the learner's ability to integrate interpreting, legal, and social knowledge, skills and values. The assessment methods must include observation (e.g. during interpreting in a legal context), product evaluation (e.g. interpreting notes, compiled glossaries, tape recordings of interpreting performance) and questioning (oral and or written) to provide sufficient opportunity to the learner to demonstrate applied competence.

Integrated assessment at the level of this qualification provides an opportunity for learners to show they are able to integrate concepts, ideas, skills, values and actions across unit standards to achieve competence that is grounded in and coherent in relation to the purpose of the qualification. An interpreter in a legal context must demonstrate a range of interpreting and legal knowledge including theory and procedure; utilise key interpreting skills including consecutive, simultaneous, whispered and summary interpreting and note-taking, as well as management skills like power and status management, and finally demonstrate professional and ethical conduct. An assessment of legal interpreting in at least two languages would thus examine competence in a range of unit standards.

Integrated assessment must judge not only the quality of the observable performance but also the thinking and understanding that underpin it. This applies to both formative and summative assessment. In formative assessment an equal weighting should be given to the application of knowledge in real work or simulated situations and the actual demonstration of skills. A greater weighting may be given to the practical demonstration of knowledge, skills and attitude in the summative assessment.

Assessment tools must also encourage learners to give an account of the thinking and decision-making that forms the basis for their demonstrated performance. An integrated mix of task-orientated and theoretical assessment tools should be used with the ultimate focus being on the assessment of applied competence.

In other words, the assessors must use a range of tools to test demonstrated competence in a practical situation (e.g. simulation of court procedure) as well as oral or written examination, that integrates the assessment of all specific outcomes for all the unit standards.

Assessment should ensure that all specific outcomes, embedded knowledge and critical cross-field outcomes are evaluated. The assessment of the critical cross-field outcomes should be integrated with the assessment of specific outcomes and embedded knowledge.

INTERNATIONAL COMPARABILITY

Interpreters are used for legal interpretation in court on a world-wide basis. Bilingualism is the minimum

requirement and following a screening of some sort, ranging from an interview to tests in both language and law, the candidates are required to take an oath or make a statement. In some cases, the screening is preceded by a short induction. In countries where formal training is available, the training mostly involves generic interpreting, with specialisation in court interpreting offered by a few institutions. Comparisons with the following countries were made, as they have multilingualism policies similar to that of South Africa or are alternatively centres of excellence: Australia, the United States, New Zealand, Germany, United Kingdom, China, Taiwan, Brazil and Botswana.

Australia has both TAFE (Technical and Further Education) qualifications and university degrees. The TAFE qualifications include the following:

- > Diploma in Interpreting and Translation.
- > Advanced Diploma in Interpreting and Translating.

Diplomas and Advanced Diplomas recognise capacity for initiative and judgement across a broad range of technical and/or management functions. The former qualification is comparable to this South African qualification. The Advanced Diploma is a more specialised qualification and signifies skill and knowledge of a greater complexity and a higher level of personal accountability than is required at a Diploma level.

The university degrees offered are a BA in Interpreting and Translation, a Graduate Diploma in Interpreting and Translation, and an MA in Interpreting and Translation. These are all degrees in community interpreting containing the subjects Legal Interpreting and The Language of the Law.

In the United States of America, interpreters are deemed competent if they are able to interpret effectively, accurately and impartially, using any necessary specialised vocabulary. Standards are set for practice rather than education and training, and differ depending on the context, for example, educational interpreting standards are distinguished from medical interpreting standards. Training of interpreters is primarily based on the ASTM International Standard Guide for Language Interpretation Services. Competence is required in terms of the setting where interpreting takes place, and includes ad hoc interpreting, simultaneous interpretation, consecutive interpreting, business interpreting, community interpreting, conference interpreting, court interpreting, dialogue interpreting, diplomatic interpreting, health-care interpreting, liaison interpreting, medical interpreting, and telephone interpreting. Court interpreters have to pass the federal exam which tests for oral proficiency in simultaneous, consecutive and sight interpreting.

American entry-level programs take a minimum of 45 hours of learning for certification, for example, in medical interpreting - this is much shorter than the South African entry-level certificate qualification at NQF Level 4, and at the level of this qualification (South African NQF Level 5) as continuing education. The closest equivalent to this qualification builds on the 45-hour program, and contains 270 classroom hours for six courses, in any two-language combinations. The competence required of learners includes introducing participants to the role of the interpreter, managing the spatial configuration of the interpreting situation, developing terminology, linguistic competence, analysis of the environment, analysis of cultural aspects, ethical conduct, self evaluation, adhering to protocol, creating a list of resources, developing a record of phrases and guidelines, and translation of simple texts - the latter is also included in the entry-level South African occupation, although this is not included in this level of qualification.

The New Zealand National Qualifications Framework has ten levels of progression. The Translating and Interpreting Unit Standards (no qualification exists on the New Zealand framework) are registered at Levels 6 and 7. Level 6 is described as involving carrying out processes that require a command of wide-ranging highly specialised technical or scholastic skills, a wide choice of standard and non-standard procedures, often in non-standard combinations, in highly variable routine and non-routine contexts. This is the equivalent of the South African NQF Level 5 or 6. The University of Auckland offers a one-semester postgraduate certificate in advanced interpreting to take learners from liaison to advanced consecutive interpreting in three professional settings: law, business and medicine. Entry requirements are a bachelor's degree.

In Germany, there is one degree offered in Court Interpreting. It is a bachelor degree in Court Interpreting offered by the Fachhochschule Magdeburg. The generic interpreting qualification that is offered is a Diplom-Dolmetscher which is equivalent to a masters degrees in interpreting (South African NQF Level 8). Competence for all qualifications includes linguistic competence, and content area of specialisation knowledge (e.g. information technology).

In the United Kingdom, occupational certificates are registered on the National and Scottish Vocational Qualifications framework, at their levels 3 and 4. At levels 3 and 4, units that can be stand-alone, or form part of other qualifications are available. In addition, at level 4, a National Vocational Qualification in Interpreting and a Diploma in Public Service Interpreting are available. These qualifications are equivalent to the National Certificate in Liaison Interpreting (NQF Level 5) in South Africa.

For the National Vocational Qualification in Interpreting, the following are compulsory:

- > Develop your Performance as an Interpreter.
- > Communicate Complex Information Relating to Work Activities.
- > Understand Complex Information Relating to Work Activities.
- > Prepare for Interpreting Assignments.
- > Conduct Interpreting Assignments.

In addition, learners can select from the following:

- > Improve Own Management of the Business.
- > Produce Sight Translations of Everyday Documents to Support Interpreting Assignments.
- > Produce Written Translations of Everyday Documents to Support Interpreting Assignments.
- > Work with Other Interpreters.

For the Diploma, learners specialise by achieving interpreting competence in one of the following units:

- > English Law.
- > Scottish Law.
- > Health.
- > Local Government.

A half-year in-service Diploma, as preparation for the professional examination, is also being offered, and another qualification (a certificate) allows specialisation in Deafblind Interpreting (not included in the South African qualification). An MA in Interpreting and Translating is offered at a higher level than this qualification. For the above qualifications in the United Kingdom, learners are typically graduates, whereas the South African qualification builds on NQF level 4 only.

In China, in-service court interpreting training takes an initial 3 years' experience in court after which the candidate may write an examination to become an assistant court translator/interpreter in one language combination, namely English/Chinese. After a further minimum of 4 years' experience, the candidate can write the examination to become a Court Translator/Interpreter in two language combinations, namely Chinese plus two other languages.

Generic interpreting training is only provided on post-graduate level with specialisation in technical and non-technical fields. Duration of the training is 22 months after which a Professional Diploma in Conference Interpreting is awarded. Competence includes consecutive and simultaneous interpreting from and into Chinese and English only.

Training for interpreters in Taiwan is aimed mainly at producing competent interpreters for government, business and the media, or as conference interpreters for international bodies. Both a post-graduate Professional Diploma in Conference Interpretation with Translation over 22 months and a two-year Masters

Degree in Interpretation are offered. Learners have to spend at least a year in the country of their first acquired language before being allowed to continue with the second year. In their final semester, students participate in internships, simulated conferences and community service. Competence includes translation skills in addition to consecutive and simultaneous interpreting from and into Chinese, Japanese and English.

Brazil offers a post-graduate Higher Education Certificate over 16 months for the training of conference interpreters. Competence includes consecutive and simultaneous interpreting from and into English and Portuguese.

Court interpreting training in Botswana is limited to in-service experience. Specialised legal interpreting training is limited to short skills development programmes presented by the University of the Free State in South Africa, at the end of which a certificate of attendance is awarded.

ARTICULATION OPTIONS

Learners who have achieved the National Diploma in Court Interpreting may articulate vertically to the BA Court Interpreting.

Horizontal articulation on the Framework is possible with:

- > National Certificate: Policing, NQF Level 5.
- > National Certificate: Paralegal Practice, NQF Level 5.
- > National Certificate: Resolving of Crime, NQF Level 5.
- > National Diploma: Corrections Science, NQF Level 5.
- > National Diploma: Liaison Interpreting, NQF Level 5.
- > National Diploma: Paralegal Practice, NQF Level 5.

Competence in individual Unit Standards will be retained by the learner who exits the qualification before completion.

MODERATION OPTIONS

Moderation must include both internal and external moderation of assessments. Moderation of assessments will be overseen by the relevant ETQA according to the moderation guidelines and agreed ETQA procedures. This qualification can be internally assessed by assessors of the provider and moderated by a moderator registered by the relevant ETQA. Moderation shall comply with SAQA requirements.

Anyone assessing a learner or moderating the assessment of a learner against this qualification or its unit standards must be registered as an assessor with the relevant ETQA.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Assessment of learner achievements takes place at providers accredited by the relevant ETQA (RSA, 1998b) for the provision of programmes that result in the outcomes specified for this qualification. Anyone assessing a learner or moderating the assessment of a learner against this qualification must be registered as an assessor with the ETQA. Assessors registered with the relevant ETQA must carry out the assessment of learners for the qualification and any of the Unit Standards that make up this qualification.

Assessors for this qualification will hold a level 6 qualification in Interpreting/Translation or possess the expertise to achieve the outcomes of this qualification and have worked as a court interpreter for at least 5 years.

Additional requirements for assessors may be specified in each unit standard.

NOTES

N/A

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	115231 Determine the impact of crime and victimisation on individuals, society and ecological systems	Level 4	9	Registered
Core	11977 Identify and apply relevant knowledge of specific common law and statutory offences	Level 5	12	Registered
Core	11978 Identify and apply different sections of the Criminal Procedure Act	Level 5	9	Registered
Core	11979 Identify and apply relevant knowledge on applicable law related to policing	Level 5	9	Registered
Core	115326 Identify and apply the principles of law of evidence	Level 5	6	Registered
Core	116613 Analyse linguistic structure of source messages	Level 5	15	Registered
Core	116616 Analyse liaison interpreting contexts	Level 5	15	Registered
Core	116617 Evaluate source and target content	Level 5	15	Registered
Core	116618 Manage interpreting situations	Level 5	15	Registered
Core	116619 Produce target messages	Level 5	15	Registered
Core	116620 Deliver target messages	Level 5	15	Registered
Core	117449 Apply the general principles of criminal law to the investigation of crime	Level 5	8	Registered
Core	119503 Demonstrate an understanding of procedure in courts and other fora	Level 5	20	Registered
Elective	14667 Describe and apply the management functions of an organization	Level 4	10	Registered
Elective	114215 Mentor a colleague to enhance the individual's knowledge, skills, values and attitudes in a selected career path	Level 4	3	Registered
Elective	114598 Demonstrate an understanding of an entrepreneurial profile	Level 4	5	Registered
Elective	10043 Develop, implement and manage a project / activity plan	Level 5	5	Reregistered
Elective	15094 Demonstrate insight into the application of theories of Emotional and Spiritual Intelligence in personal development	Level 5	5	Registered
Elective	15219 Develop and implement a strategy and action plans for a team, department or division	Level 5	4	Registered
Elective	15220 Set, monitor and measure the achievement of goals and objectives for a team, department or division within an organisation	Level 5	4	Registered
Elective	15224 Empower team members through recognising strengths, encouraging participation in decision making and delegating tasks	Level 5	4	Registered
Elective	15238 Devise and apply strategies to establish and maintain relationships	Level 5	3	Registered
Elective	114278 Demonstrate and apply an understanding of the Labour Relations Act (Act 66 of 1995)	Level 5	12	Registered
Fundamental	8647 Apply workplace communication skills	Level 5	10	Reregistered
Fundamental	15096 Demonstrate an understanding of stress in order to apply strategies to achieve optimal stress levels in personal and work situations	Level 5	5	Registered
Fundamental	115006 Analyse various texts in different contexts	Level 5	10	Registered
Fundamental	115014 Decode source culture	Level 5	20	Registered
Fundamental	116484 Evaluate a specified code of ethics and/or code of conduct	Level 5	6	Registered

**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

Civil Engineering and Construction

Registered by Organising Field 12, Physical Planning and Construction, 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 upon which qualifications are based. The full 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.

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 Civil Engineering and Construction** and addressed to

The Director: Standards Setting and Development
SAQA
Attention: Mr. E. Brown
Postnet Suite 248
Private Bag X06
Waterkloof
0145
or faxed to 012 – 431-5144
e-mail: ebrown@saqa.co.za


DUGMORE MPHUTHING
ACTING DIRECTOR: STANDARDS SETTING AND DEVELOPMENT



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:

National Certificate: Overhead Track Equipment

SAQA QUAL ID	QUALIFICATION TITLE		
50020	National Certificate: Overhead Track Equipment		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Civil Engineering Construction	12		
QUALIFICATION TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD	
National Certificate	Physical Planning and Construction	Electrical Infrastructure Construction	
ABET BAND	MINIMUM CREDITS	NQF LEVEL	QUALIFICATION CLASS
Undefined	158	Level 3	Regular-Unit Stds Based

PURPOSE AND RATIONALE OF THE QUALIFICATION

Purpose:

The primary purpose of this qualification is to develop the required competencies in a learner for a career in Overhead Track.

Qualified learners will be able to:

- > Remove, assemble, replace/install and maintain overhead track equipment.
- > Obtain, issue and cancel a work permit.
- > Communicate effectively with relevant role-players (e.g. peers, managers, etc.) by expressing opinions in spoken and written form.
- > Calculate quantities and distances correctly.

The core and elective Unit Standards provide credits that allow the learner access to both vertically and horizontally articulated qualifications in the electrical engineering and construction field. The social status, productivity and employability of the qualifying learner within the electrical engineering and construction field will be enhanced, thereby contributing to the quality and skills required in this field. Learners are able to demonstrate occupational skills, which enable them to engage in life skills activities, creation of small businesses and health and environmental issues, through the critical cross-field component of the qualification.

Rationale for the qualification:

This qualification is for learners who want to follow a career in Overhead Track Equipment (OHE) and related fields. Overhead Track Equipment forms a critical part of the infrastructure of a rail transport system and contributes to reliable, available, safe and efficient train operations. It is therefore vitally important that Overhead Track Equipment be safely and correctly maintained on 3 kV DC and 25/50 kV AC in order to meet standards set in associated Overhead Track Equipment engineering specifications.

There are 3 qualifications in the Overhead Track Equipment at level 2, 3 and 4. This is the third qualification in the learning pathway. The qualification equips the learner with the skills, knowledge and understanding to safely and correctly remove, assemble, replace/install and maintain Overhead Track Equipment to the required standards and specifications.

Learners credited with this qualification and who apply the acquired knowledge and skills can help address the critical shortage of qualified personnel in the industry. For the new learner, this qualification is needed to enable him/her to be a productive person in a structured workplace.

These skills and knowledge are essential in and to the following domains:

- > Enabling the rendering of electrical continuity to the rail transport service.
- > Enabling the rendering of a rail transport service.
- > Contributing to economic growth.

RECOGNIZE PREVIOUS LEARNING?

Y

LEARNING ASSUMED TO BE IN PLACE

This qualification assumes that learners are competent in:

- > Communication at NQF Level 2
- > Mathematical Literacy at NQF Level 2

Recognition of prior learning:

For learners who have acquired experience in the workplace, this qualification may be obtained in part or in whole through RPL by formally acknowledging workplace skills acquired without the benefit of formal education or training. The learner should be thoroughly briefed on the mechanism to be used. Support and guidance should be provided to the learner. Care should be taken that the mechanism used provides the learner with an opportunity to demonstrate competence and is not so onerous as to prevent learners from taking up the RPL option towards gaining a qualification.

Access to the qualification:

Learners need to be physically fit and robust.

Due to the safety requirements in the overhead track environment, learners must:

- > Not be colour blind;
- > Not be claustrophobic;
- > Be able to gauge distance; and
- > Not suffer from acrophobia.

Access to the qualification is open to all learners complying with the above-mentioned criteria. It would be preferable for learners to first complete the National Certificate in Overhead Track Equipment Level 2 before accessing this qualification.

QUALIFICATION RULES

Level, credits and learning components assigned to this qualification:

The Fundamental, Core and Elective learning components that make up this qualification, are listed below.

Fundamental:

- > 36 credits at NQF Level 3
- > 36 credits

Core:

- > 6 credits at NQF Level 2
- > 56 credits at NQF Level 3
- > 30 credits at NQF Level 4
- > Total: 92 credits

Elective:

- > 31 credits at NQF Level 3
- > Total: 31 credits

The total credits for this qualification are 159.

Motivation for the number of credits assigned:

Fundamental credits:

> Twenty credits are allocated to Communication and 16 credits to Mathematical Literacy. All the Fundamental unit standards are compulsory.

Core credits:

> 92 credits have been allocated to the Core Unit Standards to sufficiently cover the field of removal, assembling, installation and maintenance of overhead track equipment. All the Core unit standards are compulsory.

Elective credits:

> 31 credits have been allocated to the Elective Component of the qualification. 20 credits must be selected from this category.

In order to obtain the qualification, the learner needs to complete at least a total of 147 credits as stipulated above.

EXIT LEVEL OUTCOMES

1. Plan and prepare the removal, assembly, replacement/installation and maintenance work on overhead track equipment under isolated and earthed conditions.
2. Remove, assemble, replace/install and maintain overhead track equipment according to overhead track equipment specifications, company-specific instructions and manufacturer's specifications under isolated and earthed conditions.
3. Finalise removal, assembly, replacement/installation and maintenance work on overhead track equipment according to company-specific instructions under isolated and earthed conditions.
4. Understand the need for communication and demonstrate verbal and written communication skills.
5. Demonstrate an understanding of the electrical environment in the rail sector.

ASSOCIATED ASSESSMENT CRITERIA

1.

- > Relevant documentation is evaluated and interpreted correctly.
- > Correct resources and material are procured after evaluating and interpreting relevant documentation.

Range: (This includes but is not limited to required personnel, transport, tools and lifting equipment)

> Problems regarding the correctness, quantity and quality of materials, parts and components as measured against quantities needed and material specifications are solved to perform the tasks of removal, assembly, replacement/installation and maintenance work on overhead track equipment, effectively under isolated and earthed conditions.

2.

> Overhead track equipment is removed, assembled, replaced/installed and maintained under isolated and earthed conditions safely and correctly as per overhead track equipment specifications, company-specific instructions and manufacturer's specifications.

> Clearance is worked "live" on overhead track equipment while performing the removal, replacement/installation and maintenance work on "live" high-voltage overhead track equipment.

> Problems regarding the suitability and functionality of equipment and tools are solved effectively by demonstrating the knowledge required for identifying sub-standards and by being able to improvise within acceptable overhead track practices. Resources are utilised and the task executed safely and responsibly.

> The use and function of the equipment being installed are explained in relation to the overhead track system correctly in terms of overhead track practices and philosophies.

3.

> Tools, equipment and material are removed safely and correctly according to company-specific instructions.

> Problems regarding finalisation of the removal, assembly, replacement/installation and maintenance work are solved under isolated and earthed conditions by demonstrating the knowledge required for identifying sub-standards and by being able to improvise within acceptable overhead track practices.

> Resources are utilised correctly and the task executed safely and responsibly.

> Work permit is obtained and cancelled within the framework of company-specific communication protocol.

4.

> Information is presented in a timely manner in the required format and to appropriate parties as stipulated in company specific policies and procedures.

> Relevant communication media and protocol are used correctly while performing tasks.

> Verbal communication is clear and concise.

> Complete documentation relating to the task in recognisable writing and as per company-specific instructions.

> Procedures for reporting and recording of potential hazards is followed according to organisational procedure.

5.

- > Safe work procedures and instructions are explained and applied to work safely in the vicinity of or near high-voltage electrical systems.
- > An understanding of the rail and OHE environment is demonstrated as per company specifications.
- > Information from visual high-voltage indicators is evaluated and reacted to critically.
- > The inter-relatedness of systems within the rail sector and the importance of applying the electrical safety instructions are understood in an electrical environment.
- > Sub-standard conditions relating to high-voltage overhead track equipment are identified and reported in accordance with company-specific instructions.

Integrated assessment:

Because assessment practices must be open, transparent, fair, valid, and reliable and ensure that no learner is disadvantaged in any way whatsoever, an integrated assessment approach is incorporated into the Qualification.

Learning, teaching and assessment are inextricably linked. Whenever possible, the assessment of knowledge, skills, attitudes and values shown in the Unit Standards should be integrated.

Assessment of the communication, language, literacy and numeracy should be conducted in conjunction with other aspects and should use authentic OHE contexts wherever possible.

A variety of methods must be used in assessment and tools and activities must be appropriate to the context in which the learner is working. Where it is not possible to assess the learner in the workplace or on-the-job, simulations, case studies, role-plays and other similar techniques should be used to provide a context appropriate to the assessment.

The term 'Integrated Assessment' implies that theoretical and practical components should be assessed together. During integrated assessments the assessor should make use of formative and summative assessment methods and assess combinations of practical, applied, foundational and reflective competencies.

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

Assessment should ensure that all specific outcomes, embedded knowledge and critical cross-field outcomes are evaluated. The assessment of the critical cross-field outcomes should be integrated with the assessment of specific outcomes and embedded knowledge.

INTERNATIONAL COMPARABILITY

This qualification was compared with the Transport and Distribution Qualifications (Rail Infrastructure) on the Australian National Training Information Service.

Units of competencies related to overhead track equipment as generated in Australia were obtained from the National Training Information Service (Web Site: www.ntis.gov.au), Certificate (Levels 1 - 4) in Transport and Distribution (Rail Infrastructure).

After scrutinising these, it was evident that the format and structure utilised within the Transport and

Distribution Industry Specific Units (TDT02) - Equipment Checking and Maintenance, was different to those prescribed by SAQA. The technical content in the units of competencies were not specific and covered a broad spectrum of equipment and tasks. This resulted in broad assessment criteria.

It was also found that although the Australian Qualifications Framework comprises thirteen national qualifications, the first five qualifications in the vocational education and training sector compare favourably with the FET levels within the NQF.

The SGG/SGA could not find any standards within the discipline of overhead track equipment in other African countries where overhead track equipment is utilised.

Various Railway companies in Africa have approached Transnet to assist in the training of their overhead track maintenance officials. Once this is effected, the unit standards generated in South Africa will be utilised for such training.

During the development of the unit standards cognisance was taken of the implementation of a National Railway Safety Regulator. The National Railway Safety Regulator promotes and controls safe rail operations and recognises that this is fundamental to the safety of all persons and the environment. The unit standards in overhead track equipment were aligned to these ideals.

ARTICULATION OPTIONS

This is a qualification in a series in overhead track equipment qualifications varying from NQF Level 2 to 4. As one of the focus areas within the overhead track equipment is on safety, the embedded safety consciousness within the working environment will be favourable to any employer. This series of qualifications articulates directly to learning programs and qualifications in overhead track equipment. It also opens the possibility for further learning in the sub-fields of Electrical Infrastructure Construction, Engineering and Related Design and Manufacturing and Assembly.

Vertical articulation is possible with:

- > FETC: NC: Overhead Track Equipment at NQF Level 4
- > FETC: NC: Railway Signalling: Faultfinding and Repair of Equipment at NQF Level 4
- > NC: Electrical Engineering at NQF Level 4

Horizontal articulation is possible with:

- > NC: Railway Signalling and Scheduled Maintenance of Equipment at NQF Level 3
- > NC: Electrical Engineering at NQF Level 3

MODERATION OPTIONS

> Anyone assessing a learner or moderating the assessment of a learner against this qualification must be registered as an assessor with the relevant (ETQA) Body, or with an 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) Body, or with an ETQA that has a Memorandum of Understanding with the relevant ETQA.

> Assessment and moderation of assessment will be overseen by the relevant (ETQA) Body, or by an 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 as well as the integrated competence described in the Qualification.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Assessors and moderators wishing to access candidates against this qualification must:

> Be registered as assessors with the relevant ETQA or with an ETQA that has a Memorandum of Understanding with the relevant ETQA body.

> Be in possession of a relevant qualification in OHTE or Electrical Engineering at least at NQF Level 4 or above.

> Have practical work experience in the OHTE environment.

NOTES

N/A

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	120215 Install a height gauge	Level 2	2	Draft - Prep for P Comment
Core	120217 Manufacture, remove, install or replace and adjust and/or position droppers on overhead traction equipment (OHTE)	Level 2	4	Draft - Prep for P Comment
Core	10894 Interpret electrical circuits	Level 3	2	Registered
Core	116438 Operate earthing devices on electrical networks	Level 3	5	Registered
Core	120218 Assemble and fit small steelwork to overhead traction equipment (OHTE) steel structures under isolated and earthed conditions	Level 3	12	Draft - Prep for P Comment
Core	120219 Erect, assemble and fit Overhead Track Equipment steelwork under isolated and earthed conditions	Level 3	15	Draft - Prep for P Comment
Core	120222 Install and secure overhead traction equipment (OHTE) switches under isolated and earthed conditions	Level 3	11	Draft - Prep for P Comment
Core	120232 Prepare and install OHTE conductors under isolated and earthed conditions	Level 3	11	Draft - Prep for P Comment
Core	119881 Prepare a booster return conductor on 25/50 kV AC OHTE under isolated and earthed conditions	Level 4	9	Recommended
Core	119883 Remove, replace/install and adjust section insulator/phase break/runners on 25/50Kv AC OHTE under isolated and earthed conditions	Level 4	9	Recommended
Core	119890 Sag and tension overhead conductors on OHTE under isolated and earthed conditions	Level 4	12	Recommended
Elective	116253 Operate a truck mounted loader crane	Level 2	20	Registered
Elective	14623 Afford on-track protection	Level 3	5	Registered
Elective	120216 Obtain, issue and cancel a work permit	Level 3	6	Draft - Prep for P Comment
Fundamental	7456 Use mathematics to investigate and monitor the financial aspects of personal, business and national issues	Level 3	5	Reregistered
Fundamental	8968 Accommodate audience and context needs in oral communication	Level 3	5	Reregistered
Fundamental	8969 Interpret and use information from texts	Level 3	5	Reregistered
Fundamental	8970 Write texts for a range of communicative contexts	Level 3	5	Reregistered
Fundamental	8973 Use language and communication in occupational learning programmes	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	Level 3	5	Reregistered
Fundamental	9013 Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts	Level 3	4	Reregistered



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

1

Install a height gauge

SAQA US ID	UNIT STANDARD TITLE		
120215	Install a height gauge		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Civil Engineering Construction	12		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Physical Planning and Construction	Civil Engineering Construction	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	2	Level 2	Regular

SPECIFIC OUTCOME 1

Communicate clearly and concisely without misunderstanding with relevant role players and complete relevant documentation.

SPECIFIC OUTCOME 2

Prepare to install a height gauge.

SPECIFIC OUTCOME 3

Install a height gauge to company specific instructions and procedures.

SPECIFIC OUTCOME 4

Finalise the installation of a height gauge.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

2

Manufacture, remove, install or replace and adjust and/or position droppers on overhead traction equipment (OHTE)

SAQA US ID	UNIT STANDARD TITLE		
120217	Manufacture, remove, install or replace and adjust and/or position droppers on overhead traction equipment (OHTE)		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Civil Engineering Construction	12		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Physical Planning and Construction	Civil Engineering Construction	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	4	Level 2	Regular

SPECIFIC OUTCOME 1

Communicate clearly and concisely without misunderstanding with relevant role players and complete relevant documentation.

SPECIFIC OUTCOME 2

Prepare to manufacture, remove, install/replace and adjust/position overhead droppers.

SPECIFIC OUTCOME 3

Manufacture droppers in accordance with dropper manufacturing procedures and specifications.

SPECIFIC OUTCOME 4

Remove, install/replace and position/adjust droppers in accordance with dropper installation and replacement procedures.

SPECIFIC OUTCOME 5

Finalise the manufacturing, removal, installation/replacement and adjust/position of droppers.



Established in terms of Act 58 of 1995

SOUTH AFRICAN QUALIFICATIONS AUTHORITY**UNIT STANDARD:**

3

Assemble and fit small steelwork to overhead traction equipment (OHTe) steel structures under isolated and earthed conditions

SAQA US ID		UNIT STANDARD TITLE	
120218		Assemble and fit small steelwork to overhead traction equipment (OHTe) steel structures under isolated and earthed conditions	
SGB NAME		ORGANISING FIELD ID	PROVIDER NAME
SGB Civil Engineering Construction		12	
UNIT STANDARD TYPE		ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION
Regular		Physical Planning and Construction	Civil Engineering Construction
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	12	Level 3	Regular

SPECIFIC OUTCOME 1

Communicate clearly and concisely without misunderstanding with relevant role players and complete relevant documentation.

SPECIFIC OUTCOME 2

Prepare to assemble and fit small steelwork to OHTe steel structures.

SPECIFIC OUTCOME 3

Assemble and fit small steelwork on OHTe steel structures according to company specific instructions and manufacturer's specifications.

SPECIFIC OUTCOME 4

Finalise the assembling and fitting of small steelwork on OHTe steel structures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

4

Erect, assemble and fit Overhead Track Equipment steelwork under isolated and earthed conditions

SAQA US ID		UNIT STANDARD TITLE	
120219		Erect, assemble and fit Overhead Track Equipment steelwork under isolated and earthed conditions	
SGB NAME		ORGANISING FIELD ID	PROVIDER NAME
SGB Civil Engineering Construction		12	
UNIT STANDARD TYPE		ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION
Regular		Physical Planning and Construction	Civil Engineering Construction
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	15	Level 3	Regular

SPECIFIC OUTCOME 1

Communicate clearly and concisely without misunderstanding with relevant role players and complete relevant documentation.

SPECIFIC OUTCOME 2

Prepare to erect, assemble and fit Overhead Track Equipment steelwork.

SPECIFIC OUTCOME 3

Erect, assemble and fit OHTE steelwork according to company specific-instructions and manufacturer's specifications.

SPECIFIC OUTCOME 4

Finalise the erection, assembly and fitting of OHTE steelwork.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

5

Install and secure overhead traction equipment (OHE) switches under isolated and earthed conditions

SAQA US ID	UNIT STANDARD TITLE		
120222	Install and secure overhead traction equipment (OHE) switches under isolated and earthed conditions		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Civil Engineering Construction	12		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Physical Planning and Construction	Civil Engineering Construction	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	11	Level 3	Regular

SPECIFIC OUTCOME 1

Communicate clearly and concisely without misunderstanding with relevant role players and complete relevant documentation.

SPECIFIC OUTCOME 2

Prepare to install, secure and adjust OHE switches.

SPECIFIC OUTCOME 3

Install, secure and adjust OHE switches in according to company-specific instructions and manufacturer's specifications.

SPECIFIC OUTCOME 4

Finalise the installation, secure and adjustment of OHE switches.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

6

Prepare and install OHTE conductors under isolated and earthed conditions

SAQA US ID	UNIT STANDARD TITLE		
120232	Prepare and install OHTE conductors under isolated and earthed conditions		
SGB NAME		ORGANISING FIELD ID	PROVIDER NAME
SGB Civil Engineering Construction		12	
UNIT STANDARD TYPE		ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION
Regular		Physical Planning and Construction	Civil Engineering Construction
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	11	Level 3	Regular

SPECIFIC OUTCOME 1

Communicate clearly and concisely without misunderstanding with relevant role players and complete relevant documentation.

SPECIFIC OUTCOME 2

Prepare and install OHTE conductors.

SPECIFIC OUTCOME 3

Prepare and install OHTE conductors in according to company-specific instructions and manufacturer's specifications.

SPECIFIC OUTCOME 4

Finalise the installation of OHTE conductors.



Established in terms of Act 58 of 1995

SOUTH AFRICAN QUALIFICATIONS AUTHORITY**UNIT STANDARD:**

7

Obtain, issue and cancel a work permit

SAQA US ID		UNIT STANDARD TITLE	
120216		Obtain, issue and cancel a work permit	
SGB NAME		ORGANISING FIELD ID	PROVIDER NAME
SGB Civil Engineering Construction		12	
UNIT STANDARD TYPE		ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION
Regular		Physical Planning and Construction	Civil Engineering Construction
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	6	Level 3	Regular

SPECIFIC OUTCOME 1

Obtain work permit.

SPECIFIC OUTCOME 2

Cancel work permit.



Established in terms of Act 58 of 1995

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.saga.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

The Director: Standards Setting and Development
SAQA

Attention: Mr. E. Brown

Postnet Suite 248

Private Bag X06

Waterkloof

0145

or faxed to 012 – 431-5144

e-mail: ebrown@saga.co.za


DUGMORE MPHUTHING

ACTING DIRECTOR: STANDARDS SETTING AND DEVELOPMENT



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?

Y

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 (alizerol, 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 process (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
Core	120240 Evaluate the sensory quality of pasteurised milk, cream or fruit milk mixtures	Level 3	5	Draft - Prep for P Comment
Core	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	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	Level 3	8	Draft - Prep for P Comment
Elective	120238 Collate and shrink-wrap packaged products using automated wrapping equipment	Level 2	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	Level 3	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	Level 3	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	Level 4	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	Level 3	5	Reregistered
Fundamental	9013 Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts	Level 3	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	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/signed communication	Level 3	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

Collate and shrink-wrap packaged products using automated wrapping equipment

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

Demonstrate an understanding of the nature of milk and its transformation into commercial dairy products

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.



Established in terms of Act 58 of 1995

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

5

Evaluate the efficiency of milk or cream pasteurisation as indicated by the phosphatase test

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 1

Demonstrate an understanding of determining milk or cream pasteurisation efficiency by means of the phosphatase test.

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.



Established in terms of Act 58 of 1995

SOUTH AFRICAN QUALIFICATIONS AUTHORITY**UNIT STANDARD:**

6

Evaluate the quality of a dairy product in terms of its fat content, as determined by the Gerber or Babcock fat determination method

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

Evaluate the sensory quality of pasteurised milk, cream or fruit milk mixtures

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

Pasteurise, thermise or vaccreate a liquid food product by means of a plate or tubular heat exchanger

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

Standardise the fat content of a liquid dairy product

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

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

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

Monitor critical control points (CCPs) as an integral part of a hazard analysis critical control point (HACCP) system

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

Operate and control the forming, filling and hermetic sealing of gable top or brick type cartons for food products

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.



Established in terms of Act 58 of 1995

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

Plastics Manufacturing

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.saga.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 Plastics Manufacturing** and addressed to

The Director: Standards Setting and Development
SAQA

Attention: Mr. E. Brown

Postnet Suite 248

Private Bag X06

Waterkloof

0145

or faxed to 012 – 431-5144

e-mail: ebrown@saga.co.za


DUGMORE MPHUTHING

ACTING DIRECTOR: STANDARDS SETTING AND DEVELOPMENT



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:

Further Education and Training Certificate: Inspection and Assessment (Non-Metallics)

SAQA QUAL ID	QUALIFICATION TITLE		
50021	Further Education and Training Certificate: Inspection and Assessment (Non-Metallics)		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Plastics Manufacturing	6		
QUALIFICATION 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	150	Level 4	Regular-Unit Stds Based

PURPOSE AND RATIONALE OF THE QUALIFICATION

Purpose:

This is the first in a series of qualifications which recognise learning in respect of skills and knowledge needed to carry out inspection and assessment of thermoplastic, polymer composite and elastomeric (non-metallic) components and installations.

The achievement of this qualification would be an indicator that a candidate has the requisite knowledge and skills in order to engage in inspection and assessment activities. This award of this qualification does not automatically constitute the right to practice as an inspector. The requirements for licensing and registration would continue to be the responsibility of the authorities accredited to do this.

This series of qualifications builds the required manufacturing, inspection and assessment skills and knowledge in a systematic way. The qualifications correspond broadly to the different grades of inspectors, ie in-house inspector, competent person and inspector of pressure vessels. But they also go beyond the licensing requirements and develop the competence for a broader quality assurance function.

This and the related qualifications will act as a framework for providers, assessors and learners to plan, implement and measure the outcomes of suitable learning programmes, or the recognition of prior learning. These qualifications can also be used by the relevant accreditation authority to licence and register inspectors.

The specific purpose of this qualification represents the skills, knowledge and understanding required by competent practitioners to:

- > Ensure the quality of the manufacturing process.
- > Promote quality principles.

The competent practitioner will have a good understanding of:

- > The materials and manufacturing processes in a particular context.
- > The principles and purposes of a quality assurance function in a manufacturing context.

This qualification will also assist employers to conform to quality standards which require self-inspection of a factory, or a part of it, to be carried out by personnel of the company. This qualification will also provide status for people involved in this function and will build a greater awareness of the need for quality assurance amongst manufacturing staff, customers and end-users.

This qualification will also serve as a basis for further learning in the field of inspection and assessment of non-metallics.

Rationale:

This qualification has been developed to address the lack of qualifications for the inspection and assessment of non-metallics. Non-metallics are relatively new polymeric materials. They are being increasingly used in the manufacture of installations, plant and equipment, including systems under pressure. These materials include thermoplastics, thermosets (including polymer composites) and elastomers which are used in a range of applications, in particular for their resistance to corrosion and a variety of chemicals. Applications include plant, equipment, vessels, piping, valves, linings, coatings, insulations and attachments. Complex installations are assembled from a variety of components and include systems under pressure.

Since these applications are generally safety critical in nature, quality assurance is required in the whole life cycle of the manufactured items, from their design to their disposal. Such quality assurance processes require qualified people to perform the inspections and assessments.

While the activity of inspection and assessment is an important component of quality assurance in the manufacturing field generally, it is particularly important for the manufacture of installations, including systems under pressure. Inspection and assessment is required during the design, manufacture, testing, installation and service life of the manufactured items.

The lack of suitably qualified people has resulted in numerous problems in the field, ranging from poor design to inadequate maintenance. Of particular concern is the fact that, because of the shortage of specialised inspectors for non-metallics, inspectors qualified in other materials or other industries are making judgements about materials of which they have little knowledge. As a result, non-metallic materials and the non-metallic manufacturing industry have suffered a loss of credibility.

This qualification, which is part of a series, is therefore designed to provide recognition for the skills, knowledge and values required for this important function of performing inspections and assessment in order to assure the quality of items manufactured from non-metallic materials.

At the time of development of this qualification there were no qualifications registered on the National Qualifications Framework for inspection and assessment activities. Since inspection and assessment are fairly generic activities found in a variety of industries, this qualification has been designed in such a way that it can also act as the basis for the development of qualifications for inspection and assessment in other contexts.

RECOGNIZE PREVIOUS LEARNING?

Y

LEARNING ASSUMED TO BE IN PLACE

It is assumed that learners are already competent in Communication and Mathematical Literacy at NQF Level 3.

Recognition of prior learning:

This qualification may be obtained through the process of RPL. The learner should be thoroughly briefed prior to the assessment and support should be provided to assist the learner in the process of developing a portfolio. While this is primarily a work-based qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the exit level outcomes.

Access to the qualification:

There is open access to this qualification. A workplace is, however, a prerequisite to obtaining the relevant work experience and evidence required for the Exit Level Outcomes.

QUALIFICATION RULES

- > All the Fundamental Unit Standards (56 Credits) are compulsory.
- > All the Core Unit Standards (82 Credits) are compulsory.
- > A minimum of 12 Credits to be chosen from the Electives.
- > A minimum 150 Credits is required to obtain the qualification.

EXIT LEVEL OUTCOMES

The Exit Level Outcomes for this qualification reflect a combination of Specific Outcomes and Critical Cross-field Education and Training Outcomes. The way in which the Critical Outcomes have been advanced through the learning required for this qualification is embedded in the way in which the unit standards have been constructed. Critical Outcomes form the basis of acquiring the skills and knowledge and values. The application of these in a specific context results in the achievement of Specific Outcomes. The integration of Specific Outcomes from a variety of unit standards results in the ability to achieve the Exit Level Outcomes.

1. Read and interpret drawings, understand manufacturing instructions and plan inspection processes.
2. Implement inspection processes, evaluate manufactured components and determine compliance with specifications.
3. Maintain the required documentation, compile quality assurance reports and report findings.
4. Interact, liaise and communicate with manufacturing personnel, members of supervisory and management levels, and end-users.

ASSOCIATED ASSESSMENT CRITERIA

1.
 - > Inspection plans contain all critical aspects related to the product and the manufacturing process.
 - > Key components and critical quality criteria are identified from the engineering drawings.
 - > Issues related to the theoretical principles of fabrication, and of the various fabrication methods, their respective operations and their quality specifications are understood.
2.
 - > All non-conformances are identified and quarantined and the manufacturing operation stopped where appropriate.
 - > Inspections are carried out according to the inspection plan.
 - > Issues related to inspection processes and the principles underpinning inspection methods are understood.
3.
 - > Documents are filed and stored correctly.
 - > Information in documents is accurate and up-to-date.
 - > Reports are comprehensive and findings are clearly and succinctly stated.
 - > The purpose and the contents of documents are explained.

> Issues of traceability, accuracy of information capture and accuracy of measurement are discussed and explained with examples.

- 4.
- > Issues and non-conformances are resolved with the relevant parties.
 - > Quality assurance is promoted and entrenched in the manufacturing culture.
 - > Strategies and approaches to influencing quality consciousness are explained and discussed with examples.

Integrated Assessment:

The integrated assessment must be based on a summative assessment guide. The guide must spell out how the assessor will assess different aspects of the performance and will include:

- > Evaluating evidence in a portfolio of evidence, particularly projects which integrate various aspects of the qualification and which demonstrate the integration of all aspects of learning: fundamental and core; knowledge and skills and values; the development of the critical outcomes.
- > Observing and listening to the learner at work, both in primary activities as well as in other interactions, or in relevant simulations.
- > Asking questions and initiating short discussions to test understanding and to verify other evidence.
- > Looking at records and reports.
- > Formative assessment.

The learner may choose in which language he/she wants to be assessed. This should be established as part of a process of preparing the learner for assessment and familiarising the learner with the approach being taken.

While this is primarily a workplace-based qualification, evidence from other areas of endeavour may be presented if pertinent to any of the Exit Level Outcomes.

The assessment process should cover the explicit tasks required for the qualification as well as the understanding of the concepts and principles that underpin the activities. The assessment process should also establish how the learning process has advanced the Critical Cross-field Outcomes.

Assessors should also evaluate evidence that the learner has been performing consistently over a period of time.

INTERNATIONAL COMPARABILITY

As with many qualifications in emerging fields and using new materials, it is difficult to find qualifications with which we can compare this submission. However, the following can provide some guidance and a basis for comparison:

- > Inspection and assessment qualifications are closely related to quality assurance qualifications and share many elements with them.
- > Inspection and assessment qualifications for traditional materials such as steel or for other industries such as the manufacture of pharmaceuticals contain many similar elements.

In general these qualifications (ie 1 and 2, above) are not well-specified to enable comparisons of qualifications developed to meet SAQA requirements. They do, however, in general conform to the pattern described for the Certified Quality Technician (CQT) Program of the American Society for Quality. The applied competence is described as:

- > First, a candidate must have at least 4 years of on-the-job experience in one or more "body of knowledge" areas that make up the primary work of the quality technician. These areas include quality control concepts, techniques, and applications; fundamentals of practical statistical methods; and applications of sampling

principles. If a candidate has completed a degree program from a university, college, or technical school with accreditation accepted by ASQ, part of the 4 year experience requirement will be waived as follows: 3 years for a bachelor's, master's or doctorate degree in any field; 2 years for an associate degree; and 1 year for completing a "quality technology program" in a community college or technical school. In addition, a candidate previously certified under most of the other ASQ programs may use the same experience time to qualify for the CQT certification.

> Second, a candidate must demonstrate to ASQ "proof of professionalism". This may be done in one of three ways:

> Membership in ASQ or one of its foreign affiliates, or another society that belongs to the American Association of Engineering Societies or Accreditation Board for Engineering and Technology.

> Registration as a professional engineer; or c) obtaining the signatures of two persons -- either ASQ, foreign affiliate, other recognized professional society members -- verifying that the candidate is "a qualified practitioner of the quality sciences".

> Third, a candidate must pass the CQT certification examination that measures comprehension of quality control concepts, principles, and practices. This quality control body of knowledge is constantly evolving as a result of new technologies, policies, and the changing dynamics of manufacturing and service industries.

This submission deals with the first and third criteria discussed above. The inspection authority would take these into account when deciding on the second criterion.

This extract demonstrates, too, that this is a qualification for occupational competence. While courses play a role in the awarding of such a qualification, experience in a field or sub-field is an essential ingredient of the overall applied competence. A written examination is not enough on its own to prove competence.

As this extract demonstrates, there is little evidence of progression or career pathing for inspection and assessment practitioners.

A career path can be constructed using the different levels of inspection described by the World Health Organisation for inspection of pharmaceutical manufacturers:

Level descriptors:

The Boiler and Pressure Vessel Inspector job family has three levels of work which are distinguished by the complexity of job assignments, the extent of responsibility assigned and the level of expertise required for completion of assigned tasks.

Level I:

> Code: J16A

> Salary Band: I

This is the basic level where employees perform inspection and compliance duties with close supervision and receive specialized training on boilers, pressure vessels, steam lines, weld procedures and applicable rules, methods and techniques. Performs inspection and compliance duties with close supervision.

Knowledge, Skills and Abilities required at this level are knowledge of pressure retaining items such as boilers, pressure vessels and steam lines, of basic mechanical apparatus/equipment theory and operation, of inspection and investigative methods and procedures, of report writing, and of the application of safety concepts, rules and codes. Ability to conduct inspections and investigations; to write reports; to apply safety codes and standards; to establish and maintain effective working relationships with others; and to communicate effectively, both orally and in writing. Ability to learn complex mathematical formula. Ability to work in close, confined spaces and to work in high places.

Education And Experience requirements at this level consist of sixty semester hours of college, including twelve hours of mathematics or physical science and one year of experience in the construction, operation or inspection of boilers or pressure vessels, or production experience in the oil and gas industry or physical plant operation; or an equivalent combination of education and experience, substituting one year of experience in the construction, operation or inspection of pressure retaining items such as boilers, air tanks or pressure vessels for the sixty semester hours of college.

Level II:

- > Code: J16B
- > Salary Band: J

This is the career level where tasks are performed independently and incumbents are given some latitude technically with freedom to develop their own work sequence under established guidelines and policies. Incumbents also inspect and review quality control and safe operation standards evaluation and assessment, and evaluate the engineering and design capabilities as well as the configuration of the environment in which installation and operation occurs, using a variety of applicable standards and calculations.

Knowledge, Skills and Abilities required at this level include those identified in Level I, plus knowledge of quality control methods and procedures; and of mechanical engineering and scientific formula and their specific application to a variety of sophisticated devices and complex installations. Ability is required to provide consultation and advice; and to discern appropriate formulas and codes for complex applications.

Education and Experience requirements at this level consist of those included in Level I and possession of a valid Commission issued by the National Board of Boiler and Pressure Vessel Inspectors. (No substitution will be allowed for the valid Commission)

Level III:

- > Code: J16C
- > Salary Band: L

This is the leadership level of the job family where employees are assigned responsibility for planning, directing and supervising the work activities of inspectors who are conducting boiler and pressure vessel inspections and investigations. Positions are assigned responsibility for the supervision of Boiler and Pressure Vessel Inspectors, including reviewing and assigning work, providing training and evaluating performance. Some positions may provide direct supervision which includes responsibilities for employee development, approving leave and initiating disciplinary actions, as well as performing related administrative functions.

Knowledge, Skills and Abilities required at this level include those identified in Level II plus knowledge of supervisory principles and practices. Ability is required to direct the work of others and to conduct multiple projects simultaneously.

Education and Experience requirements at this level consist of those identified in Level II plus four years of experience in the inspection of boilers and pressure vessels to also include in-service inspections, accident and incident investigations and review of repair and alteration plans and computations, substituting the successful completion of the "B" endorsement examination, offered by the National Board of Boiler and Pressure Vessel Inspectors, for twelve months of the required experience.

The following illustrates how the levels described above compare with our South African NQF levels:

- > Level of inspector: Self-inspection or internal audit of a factory or a part of it carried out by personnel of the company, NQF level: NQF 4.
- > Level of inspector: Inspection by an independent person or group of persons as a review of the quality

system of a company in compliance with the standards issued by the International Organization for Standardization (ISO 9000-9004 (4)) or the British Standards Institution (BS 5750 (5)) or with other equivalent national standards, NQF level: NQF 5- Certificate.

> Level of inspector: Audit of a manufacturer or supplier by authorized agents of the customer, NQF level: NQF 5-Diploma.

Courses for the inspection component range, for example, from:

1. Two weeks full time covering the following:

Basic aspects of inspection, Inspector's responsibilities, duties, attributes and the understanding of legislation, Boilers and Pressure equipment, Safety during Inspection, Methods of inspection, pressure equipment Inspection, Assessment of pressure equipment integrity, Materials, Manufacture, Common modes and causes of deterioration and failure, Repairs, alterations (modification), replacement and re-rating, Documentation, Inspection and repair of specific pressure equipment (to AS/NZS3788).

To:

2. 4 semesters for a diploma or 8 semesters for a bachelor of science degree which cover all aspects of design, manufacturing and quality as a basis for career in inspection and assessment and result in the following outcomes:

> Develop students' intellectual, scientific, technical, practical, communication, interpersonal and social skills, in an integrated fashion, in preparation for practice at the entry-level position in the major areas representing practice in the mechanical engineering technology field.

> Mechanical Design; where knowledge and skill are required to conceive requirements, provide analysis, integrated design solutions, testing and verification of concept, and the ability to present the design using acceptable methods.

> Manufacturing; where knowledge and skill are required to develop manufacturing plans, design integrated production systems with quality, cost and safety requirements, and considering operation in national and global environments.

> Applied Thermal Science; where knowledge and skill are required to analyze, design, test and correct fluid and thermal systems involved in various industrial conversion processes, and in comfort control

> Plastics and Composites; where knowledge and skill are required to establish design requirements, provide manufacturing plans and systems for optimized performance

> Communication Skills; requiring the use of various media to communicate concepts, technical assessments and design solutions to a variety of audience including those with limited engineering knowledge

> Ethics, Interpersonal and Social Skills; expected for professional practice in an environment requiring team effort, where decisions and actions can effect citizens and communities.

> Instill in graduates the ability to further their knowledge through continuing and self directed studies.

> Maintain technological currency of the program and prepare graduates to practice in a technologically dynamic environment.

> Maintain interaction with the local and regional industrial and commercial community where the program graduates are expected to practice.

This latter qualification indicates some of the difficulties in designing a qualification for inspection and assessment. The inspection process is buried deep within the overall qualification which may have other purposes besides inspection.

There are generally two routes to acquiring the competencies to perform inspection and assessment activities:

> Based on extensive experience in the manufacturing industry and quality assurance processes.

> Professional engineers and technicians who perform inspection and assessment as part of their

professional function.

As a general rule, to gain experience and to qualify for registration, inspectors would have to perform inspections under the guidance of an experienced registered person at the same level or above. This is explained in relation to the pharmaceutical industry:

> Inspectors should have previous training and practical experience in the manufacture and/or quality control of pharmaceutical products. Graduate pharmacists, chemists, or scientists with an industrial background in pharmaceutical production would qualify for consideration.

> In-post training should include an element of apprenticeship gained by accompanying experienced inspectors on site visits as well as participation in courses and seminars on relevant subjects including modern pharmaceutical technology, microbiology, and the statistical aspects of quality control.

Embedded in the inspection and assessment competencies is the notion of maturity, as indicated by the American Society for Quality in relation to environmental analysts (who perform an inspection and assessment role in order to maintain safe and healthy working environments in factories, etc):

> In actuality, participants in Environmental Analyst Apprenticeship programs tend to be older individuals, reflecting the fact that employers and employees both tend to agree that experienced workers - those with at least several years of day-to-day, hands on pragmatic knowledge of the hazards and problems of a particular manufacturing industry - often make the best environmental analysts.

As part of the development of these qualifications, the contents of two local courses were reviewed and incorporated into the qualifications. These courses, which are run at the Vaal University of Technology and the Durban Institute of Technology, have also been benchmarked against similar international courses.

ARTICULATION OPTIONS

Articulates horizontally to:

- > FETC Polymer Composites Fabrication.
- > FETC Thermoplastic Fabrication.

Articulates vertically to:

- > National Diploma in Inspection and Assessment (Non-Metallics) NQF L 5.
- > National Certificate in Inspection and Assessment (Non-Metallics) NQF L 5.
- > BSc (Eng), B-Tech, ND in Plastics Technology.

MODERATION OPTIONS

Moderators for the qualification should be registered as moderators with the relevant ETQA and qualified in inspection and assessment. Moderators should be qualified assessors in their own right.

To assure the quality of the assessment process, the moderation should cover the following:

- > Assessor credentials.
- > The assessment instrument.
- > The assessment process.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

The following criteria should be applied by the relevant ETQA:

- > Appropriate qualification in the field of non-metallic fabrication with a minimum of 3 years' experience in an

> Appropriate qualification in the field of non-metallic fabrication with a minimum of 3 years' experience in an inspection and assessment (non-metallics) environment. The subject matter expertise of the assessor can be established by recognition of prior learning.

> Appropriate experience and understanding of assessment theory, processes and practices.

> Good interpersonal skills and the ability to balance the conflicting requirements of:

> Maintaining national standards.

> The interests of the learner.

> The need for transformation and redressing the legacies of the past

> The cultural background and language of the learner.

> Registration as an assessor with a relevant ETQA.

> Any other criteria required by a relevant ETQA.

NOTES

N/A

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	13254 Contribute to the implementation and maintenance of business processes	Level 4	10	Registered
Core	13301 Produce complex engineering drawings	Level 4	6	Registered
Core	14586 Monitor and control quality control practices in a manufacturing/engineering environment	Level 4	8	Registered
Core	14708 Commission and hand over thermoplastic fabrications	Level 4	10	Registered
Core	120220 Perform destructive and non-destructive tests on non-metallics	Level 4	6	Draft - Prep for P Comment
Core	120221 Maintain business relationships during inspection and assessment processes	Level 4	8	Draft - Prep for P Comment
Core	120223 Prepare and manage quality documentation	Level 4	6	Draft - Prep for P Comment
Core	120225 Inspect complex non-metallic manufactured components and assemblies	Level 4	28	Draft - Prep for P Comment
Elective	12429 Develop a personal financial plan	Level 3	2	Registered
Elective	12455 Perform the role of a safety, health and environmental protection representative	Level 3	4	Registered
Elective	116714 Lead a team, plan, allocate and assess their work	Level 3	4	Registered
Elective	116940 Use a Graphical User Interface (GUI)-based spreadsheet application to solve a given problem	Level 3	6	Registered
Elective	10953 Operate a rigid vehicle	Level 4	32	Reregistered
Elective	13224 Monitor the application of safety, health and environmental protection procedures	Level 4	4	Registered
Elective	13235 Maintain the quality assurance system	Level 4	5	Registered
Elective	13941 Apply the budget function in a business unit	Level 4	5	Registered
Elective	119185 Maintain calibrated equipment and standards for plastics manufacturing processes	Level 4	6	Registered
Fundamental	8968 Accommodate audience and context needs in oral communication	Level 3	5	Reregistered
Fundamental	8969 Interpret and use information from texts	Level 3	5	Reregistered
Fundamental	8970 Write texts for a range of communicative contexts	Level 3	5	Reregistered
Fundamental	8973 Use language and communication in occupational learning programmes	Level 3	5	Reregistered
Fundamental	7468 Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues	Level 4	6	Reregistered
Fundamental	8974 Engage in sustained oral communication and evaluate spoken texts	Level 4	5	Reregistered

Fundamental	8979 Use language and communication in occupational learning programmes	Level 4	5	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 analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts	Level 4	4	Reregistered
Fundamental	12153 Use the writing process to compose texts required in the business environment	Level 4	5	Registered
Fundamental	12155 Apply comprehension skills to engage written texts in a business environment	Level 4	5	Registered



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

1

Inspect complex non-metallic manufactured components and assemblies

SAQA US ID	UNIT STANDARD TITLE		
120225	Inspect complex non-metallic manufactured components and assemblies		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Plastics 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	28	Level 4	Regular

SPECIFIC OUTCOME 1

Verify materials specified against the drawing or works instruction, verify the practical implementation of the drawing and recognise if changes are required.

SPECIFIC OUTCOME 2

Verify manufacturing sequence, inspect each step in the manufacture of the components and verify that tasks have been completed and conform to specifications.

SPECIFIC OUTCOME 3

Identify and report potential and actual non-conformances, recommend corrective action and inspect results.

SPECIFIC OUTCOME 4

Conduct required tests.

SPECIFIC OUTCOME 5

Request tests to be conducted and witness or verify tests.

SPECIFIC OUTCOME 6

Compile and process appropriate documentation and reports.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

2

Maintain business relationships during inspection and assessment processes

SAQA US ID	UNIT STANDARD TITLE		
120221	Maintain business relationships during inspection and assessment processes		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Plastics 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

Present quality documentation to client and obtain approval.

SPECIFIC OUTCOME 2

Liaise with manufacturing personnel, supervisors and management and resolve problems, issues and non-conformances.

SPECIFIC OUTCOME 3

Liaise with clients, suppliers and inspection authorities during manufacture and resolve quality issues.

SPECIFIC OUTCOME 4

Present findings and justifications to management and clients.

SPECIFIC OUTCOME 5

Respond to third party inspection questions and requests.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

3

Perform destructive and non-destructive tests on non-metallics

SAQA US ID	UNIT STANDARD TITLE		
120220	Perform destructive and non-destructive tests on non-metallics		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Plastics 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

Obtain test procedures and acceptance criteria and develop a testing plan.

SPECIFIC OUTCOME 2

Perform non-destructive tests and compile record of test results.

SPECIFIC OUTCOME 3

Perform destructive tests and compile record of test results.

SPECIFIC OUTCOME 4

Care for and store equipment and samples.

SPECIFIC OUTCOME 5

Analyse data and determine acceptability of components.

SPECIFIC OUTCOME 6

Isolate non-conforming components.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

4

Prepare and manage quality documentation

SAQA US ID		UNIT STANDARD TITLE	
120223		Prepare and manage quality documentation	
SGB NAME		ORGANISING FIELD ID	PROVIDER NAME
SGB Plastics 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

Interact with manufacturing personnel to plan the quality documentation.

SPECIFIC OUTCOME 2

Prepare all quality documentation and draw up a step-by-step activity plan.

SPECIFIC OUTCOME 3

Manage the process of collecting and verifying data against the quality documentation.

SPECIFIC OUTCOME 4

Compile end-of-job quality documentation for manufactured components.

SPECIFIC OUTCOME 5

Sign off project, complete and issue compliance certificates and copy and archive documentation.

Looking for out of print issues of Government and Provincial Gazettes

We can provide photocopies

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Printed by and obtainable from the Government Printer, Bosman Street, Private Bag X85, Pretoria, 0001
Publications: Tel: (012) 334-4508, 334-4509, 334-4510
Advertisements: Tel: (012) 334-4673, 334-4674, 334-4504
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