



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.sqa.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

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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?

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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 subfield 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 rerating, 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

NIA

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	Level4	5	Reregistered
Fundamental	9015 Apply knowledge of statistics and probability to critically interrogate and effectively communicate findings on life related problems	Level4	6	Reregistered
Fundamental	9016 Represent analyse and calculate shape and motion in 2 and 3-dimensional space in different contexts	Level4	4	Reregistered
Fundamental	12153 Use the writing process to compose texts required in the business environment	Level4	5	Registered
Fundamental	12155 Apply comprehension skills to engage written texts in a business environment	Level4	5	Registered



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

1

SAQA US ID	UNIT STANDARD TITLE		
120225	Inspect complex nonmetallic 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

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 nondestructive tests on non-metallics

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 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

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 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.