

No. 925

5 October 2007

**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

Pulp and Paper

registered by Organising Field 06 – Manufacturing, Engineering and Technology, publishes the following Qualification and Unit Standards for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purpose of the Qualification and Unit Standards. The full 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, SAQA House, 1067 Arcadia Street, Hatfield, Pretoria.

Comment on the Qualification and Unit Standards should reach SAQA at the address below and **no later than 5 November 2007**. All correspondence should be marked **Standards Setting – Pulp and Paper** and addressed to

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SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:

National Certificate: Pulp and Paper Operations

SAQA QUAL ID	QUALIFICATION TITLE		
59039	National Certificate: Pulp and Paper Operations		
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
QUALIFICATION TYPE	FIELD	SUBFIELD	
National Certificate	6 - Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	MINIMUM CREDITS	NQF LEVEL	QUAL CLASS
Undefined	130	Level 3	Regular-Unit Stds Based

PURPOSE AND RATIONALE OF THE QUALIFICATION

Purpose:

This qualification is used to address the training needs of learners wishing to progress beyond NQF Level 2 in pulp and paper operations. This competence provides the foundation needed to take responsibility for a significant process in the pulp and paper manufacturing industry. It also provides the basis upon which further related learning and career development can take place.

Qualifying learners will:

- Apply problems solving strategies in a pulp and paper processing environment.
- Apply safety and environmental protection procedures in the workplace.
- Monitor and control pulp and paper operations in a range of specialised contexts.
- Maintain quality in a pulp and paper processing environment.

Social development and economic transformation are enhanced through efficient task performance, and career development and personal job satisfaction of processing personnel are facilitated through the learning process used to achieve the competency specified.

This qualification will contribute to the full development of the learner within the pulp and paper industry by providing recognition, further mobility and transportability within the field. The skills, knowledge and understanding demonstrated within this qualification are essential for social and economic transformation and contribute to the progression and economic growth within the pulp and paper processing and maintenance fraternity.

Rationale:

This qualification replaces the National Certificate: Pulp and Paper Woodyard Operations NQF Level 3 (ID 35939).

This qualification is the third in a learning pathway for people working in the pulp and paper processing industry who need to progress beyond NQF Level 2 in Pulp and Paper Operations. The NQF Level 2, 3, and 4 qualifications in Pulp and Paper Operations are aimed at the learner who wants to gain competence in the skills needed for pulp and paper manufacturing operations in a pulp and paper mill.

The N.C. Pulp and Paper Operations NQF Level 3 allows the learner a choice of specialisation areas in the pulp and paper manufacturing industry. This competence provides the foundation needed to progress in the pulp and paper industry. Through the employment of competent personnel, employers and the industry have confidence that this critical work in the industry is efficiently carried out.

Typical learners are operating personnel working in a chemical or a pulp and paper processing plant. The pulp and paper industry is well established in South Africa and its success is dependant upon the efficient production of products. Achievement of this objective is largely dependant upon the competence, recognised by this qualification, of the people who operate processing equipment. An adequate number of people with these skills are needed to ensure that the pulp and paper production units in South Africa operate productively.

RECOGNIZE PREVIOUS LEARNING?

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LEARNING ASSUMED IN PLACE

This qualification has been designed as the third in a series of four qualifications for pulp and paper operations in the pulp and paper processing and related manufacturing industry.

It is assumed that learners are already competent in:

- National Certificate: Pulp and Paper Operations NQF Level 2 or equivalent.
- Communication and mathematical literacy at NQF Level 2.

Recognition of Prior Learning:

Recognition of prior learning must be carried out in accordance with the policy and rules specified and used by the ETQA responsible for evaluation of people seeking RPL for a part of the whole qualification.

Access to the Qualification:

Access is open to anyone with access to learning opportunities and work experience on an appropriate selection of systems. The learning assumed to be in place is essential to the learning specified in this qualification. If the learner is not yet competent in this regard the shortfalls must be addressed prior to commencing with learning specified in this qualification. This is necessary to ensure the safety of the learner, co-workers, the work process and the environment.

Access for learners with disabilities is dependant on the:

- Type and severity of the disability.
- Nature of the operational processes and requirements of the equipment.

QUALIFICATION RULES

In the compulsory Fundamental Component of the qualification, a learner must demonstrate his/her competence in the 20 credits in the field of Communication plus 16 credits in the field of Mathematics.

The unit standards in the compulsory Core Component of the qualification reflect the skills and competencies needed for building expertise in the pulp and paper manufacturing field. In the Core Component, the learner must demonstrate his/her competence in the total of 35 credits.

The Elective component of the qualification is made up of the following three sections:

Pulp and paper electives: Each learner is required to select a minimum of 10 credits from this section - although more credits may be chosen from this section.

Pulp and paper electives: Select a minimum of 10 credits:

NLRD ID; Title; Level; Credits:

- ID 246647: Produce and store wood chips; Level 3; 6 Credits.
- ID 246642: Bleach pulp for the production of paper, board or tissue; Level 3; 15 Credits.
- ID 246635: Generate chlorine dioxide for pulp bleaching; Level 3; 15 Credits.
- ID 246643: Treat pulp suspensions using an oxygen delignification process; Level 3; 10 Credits.
- ID 246645: Produce mechanical pulp; Level 3; 12 Credits.
- ID 246648: Remove spent liquor contaminants from pulp; Level 3; 8 Credits.
- ID 246623: Produce calcium bisulphite cooking liquor using a liquor preparation plant; Level 3; 10 Credits.
- ID 246644: Increase pulping spent liquor solids using an evaporation process; Level 3; 12 Credits.
- ID 246641: Generate white liquor using a causticizing process; Level 3; 10 Credits.
- ID 246640: Coat paper or board using a coating machine; Level 3; 10 Credits.
- ID 246632: Prepare coating slurry to coat paper or board products; Level 3; 10 Credits.
- ID 246625: Prepare and provide a continuous supply of stock to the forming section of a paper, board or tissue machine; Level 3; 2 Credits.
- ID 246638: Dry and reel formed paper, board or tissue; Level 3; 15 Credits.
- ID 246646: Produce paper, board or tissue reels using a winder or rewinder; Level 3; 10 Credits.
- ID 246628: Produce cut/slit sheets of paper, board, pulp or tissue; Level 3; 6 Credits.
- ID 246629: Debark logs using a drum debarker; Level 3; 6 Credits.
- ID 246651: Prepare and supply washed and depithed bagasse; Level 3; 6 Credits.
- ID 246650: Produce crude tall oil by the acidification of Kraft soap skimmings; Level 3; 6 Credits.
- ID 246639: Produce unslaked lime using a rotary lime kiln; Level 3; 10 Credits.
- ID 246631: Prepare chemical additives used in the pulp and paper industry; Level 3; 4 Credits.
- ID 246652: Produce supercalendered paper or board; Level 3; 6 Credits.
- ID 246649: Demonstrate understanding of the water treatment and effluent treatment processes in the pulp and paper industry; Level 3; 6 Credits.

Product testing electives: Each learner is required to select at least one Unit standard from this section (a minimum of 4 credits - although more credits may be selected).

Pulp and paper tests: Select at least 1 Unit standard:

NLRD ID; Title; Level; Credits:

- ID 246636: Perform visual inspection tests to identify paper defects; Level 3; 4 Credits.
- ID 246634: Conduct physical tests on paper, board or tissue; Level 3; 5 Credits.
- ID 246637: Monitor and control product parameters in a manufacturing environment; Level 2; 5 Credits.
- ID 246633: Perform physical and chemical tests on pulp and paper chemicals; Level 3; 4 Credits.
- ID 246627: Perform physical and chemical tests on pulp; Level 3; 4 Credits.
- ID 243630: Perform physical and chemical tests on raw materials; Level 3; 4 Credits.

Electives: The qualification is completed by selecting sufficient credits from this section to make up 130 credits.

Electives:

NLRD ID; Title; Level; Credits:

- ID 244088: Act as a safety watcher during performance of maintenance activities; Level 3; 3 Credits.
- ID 244098: Perform statistical process control in a process environment; Level 3; 4 Credits.
- ID 244090: Demonstrate understanding of the principles of kinematics in physics; Level 3; 6 Credits.
- ID 244091: Identify and interpret instrument control loops; Level 3; 8 Credits.
- ID 244093: Read and interpret process and instrument diagrams; Level 3; 4 Credits.
- ID 244095: Dismantle, assemble and install basic components in a process environment; Level 3; 6 Credits.
- ID 244094: Perform and support maintenance functions; Level 3; 5 Credits.
- ID 10170: Demonstrate understanding of employment relations in an organisation; Level 3; 3 Credits.
- ID 119078: Use a GUI based word processor to enhance a document through tables and columns; Level 3; 5 Credits.
- ID 116940: Use a GUI based spreadsheet application to solve a given problem; Level 3; 6 Credits.
- ID 116936: Use a GUI based database application to work with simple databases; Level 3; 3 Credits.
- ID 114250: Understand the operating principles, processes and variables associated with the drying of paper, board or tissue products; Level 4; 10 Credits.
- ID 114271: Understand the operating principles, processes and variables associated with the coating of paper or board; Level 4; 10 Credits.
- ID 114269: Understand the operating principles, processes and variables in stock preparation in the pulp and paper industry; Level 4; 10 Credits.
- ID 114253: Understand the printing processes and quality requirements for the end use of manufactured paper products; Level 4; 10 Credits.
- ID 114266: Understand the processes and the variables in mechanical pulping; Level 4; 10 Credits.
- ID 114270: Understand the operating principles, processes and variables associated with pulp bleaching; Level 4; 10 Credits.
- ID 110038: Understand the process and variables in woodyard operations; Level 4; 8 Credits.

EXIT LEVEL OUTCOMES

1. Apply problems solving strategies in a pulp and paper processing environment.
2. Apply safety and environmental protection procedures in the workplace.
3. Monitor and control pulp and paper operations in a range of specialised contexts.
4. Maintain quality in a pulp and paper processing environment.

Critical Cross-Field Outcomes

Each critical cross-field outcome was considered in terms of its applicability to each of the specific outcomes for each unit standard. Where it was found to be applicable, the nature of the skills being developed was specified by the working group and captured in the standard. Critical cross-field outcomes are assessed per unit standards and are part of all exit level outcomes.

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

Critical cross-field outcomes:

While performing integrated pulp and paper operations, qualifying learners can:

Identify and solve problems in which response displays that responsible decisions, using critical and creative thinking, have been made by:

- Responding to emergencies in a pulp and paper processing environment, Evident in Exit Level Outcome 2.
- Monitoring and controlling quality assurance practices, Evident in Exit Level Outcome 1, 2, 3, 4.
- Applying operating procedures, Evident in Exit Level Outcome 3, 4.
- Controlling variables impacting on operations, Evident in Exit Level Outcome 1, 2, 3, 4.

Work effectively with others as a member of a team, group, organisation or community by:

- Working in a coordinated team during pulp and paper processing operations, Evident in Exit Level Outcome 3.
- Coordinating one's work with that of others in the direct surrounding area, internal and external operations, Evident in Exit Level Outcome 1, 2, 3, 4.

Organise and manage oneself and one's activities responsibly and effectively by:

- Using operating instructions to control process plant conditions, Evident in Exit Level Outcome 3.
- Implementing the steps to solve operating problems in a process plant, Evident in Exit Level Outcome 1, 3.
- Applying quality procedures in a process environment to maintain product quality, Evident in Exit Level Outcome 1, 4.

Collect, analyse, organise and critically evaluate information by:

- Monitoring operational parameters, Evident in Exit Level Outcome 1, 3, 4.
- Collating and sorting product quality data, Evident in Exit Level Outcome 1, 3, 4.
- Monitoring and interpreting product quality data and data obtained from product analysis, Evident in Exit Level Outcome 1, 3, 4.
- Managing records, reports and stock. Evident in Exit Level Outcome 1, 2, 3, 4.

Communicate effectively by using mathematical and/or language skills in the modes of oral and/or written presentations by:

- Recording and interpretation of instrument readings, Evident in Exit Level Outcome 1, 3, 4.
- Preparing and presenting reports. Evident in Exit Level Outcome 1, 3, 4.

Use science and technology effectively and critically, showing responsibility towards the environment and health of others by:

- Working according to health and safety regulations, Evident in Exit Level Outcome 2, 3, 4.
- Controlling technologically advanced production equipment according to operating procedures, Evident in Exit Level Outcome 1, 2, 3, 4.
- Working and interpreting technologically advanced instrumentation and computer systems, Evident in Exit Level Outcome 1, 3, 4.

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

- Monitoring and controlling quality assurance practices, Evident in Exit Level Outcome 3, 4.
- Adjusting equipment and machinery while taking cognisance of the downstream impact, Evident in Exit Level Outcome 1, 3, 4.

Contribute to the full personal development of each learner and the social and economic development of the society at large by:

- Maintaining and applying safety practices in the production environment, Evident in Exit Level Outcome 1, 2, 3, 4.
- Maintaining and applying quality practices in the production environment, Evident in Exit Level Outcome 3, 4.
- Performing core operating functions, Evident in Exit Level Outcome 3.

ASSOCIATED ASSESSMENT CRITERIA

Associated Assessment Criteria for Specific Outcome 1:

- Operating problems in a process plant are solved by making use of relevant technologies.
- Statistical process control is performed in a process environment.
- Instrument control loops are identified and interpreted in accordance with specified requirements.

Associated Assessment Criteria for Specific Outcome 2:

- Emergencies in a process environment are responded to in accordance with specified requirements.
- Procedures are implemented to maintain the safety, health and environmental integrity of a processing environment.

Associated Assessment Criteria for Specific Outcome 3:

- The principles of chemistry and chemical reactions are explained as applicable to a processing environment.
- The fundamental principles of screening and cleaning operations are explained in terms of pulp and paper operations.
- Operating instructions are used to control process plant conditions in accordance with workplace procedures.
- Plant is monitored in a process environment in accordance with specified requirements.

Associated Assessment Criteria for Specific Outcome 4:

- Pulp and paper tests are performed in accordance with workplace requirements.
- Product parameters are monitored and controlled in the pulp and paper environment.
- The quality of products is maintained in a production environment.
- Corrective action is taken to ensure quality of materials and products.

Integrated Assessment:

The applied competence (practical, foundational and reflexive competencies) of this qualification will be achieved if a candidate is able to achieve all the exit level outcomes of this qualification.

Appropriate methods and tools must be used to assess practical, foundational and reflexive competence of the learner in all the exit level outcomes listed above, as well as to determine a learner's ability to solve problems, work in a team, organise him/herself, use applied science, and understand the implications of actions and reactions in the world as a set of related

systems. Such an assessment process will determine development of the whole person, and the integration of applied knowledge and skills.

Assessors should develop, conduct, and ensure integration of, assessment by making use of a range of formative and summative assessment methods against the unit standards that make up the qualification. Combinations of applied, foundational and reflective competencies, including critical cross-field outcomes, should be assessed wherever possible.

Moderators should ensure that assessment is valid, consistent and integrated into work or learning, and that there is sufficient and authenticated evidence of learner competence against the whole qualification.

INTERNATIONAL COMPARABILITY

An extensive international comparability comparison was made including Australia, New Zealand, Britain, Scotland, Canada, the USA, Sweden, Finland, Germany and relevant African countries.

USA, Canada, Scandinavia and Germany:

Despite the fact that the pulp and paper industry is very well-developed in all the countries in the extreme northern areas of the world, most operators are still trained on the job with some short courses offered by equipment suppliers.

In the USA staff is mostly trained on the specific machines they operate at the time of establishing a new mill. TAPPI (a technical association for the pulp, paper and converting industry) offers a wide range of short, technical courses for operating staff. A number of pulp and paper related university degrees are also offered in the USA.

Canada has the largest pulp operations in the world, but has no formal national qualifications registered. As is the international trend, most operator training is done on the job. However, a number of colleges offer a Pulp and Paper Operations Certificate (post school) training course. The courses generally train the learners from 7 to 9 months in general pulp and paper mill operations for entry level machine and utility operators. As in the USA, pulp and paper related degrees are offered by local universities.

The Scandinavian pulp and paper industry (including Sweden, Norway and Finland) follows the same trend. Most training is done on the job, with no vocational training leading to a qualification. As in the USA there are a variety of pulp and paper degrees on offer at universities in all three these countries.

Three year Paper Technology Diplomas are offered by several German Universities. Although these diplomas have a strong workplace emphasis, they are comparable to South African diplomas rather than vocational training qualifications. Subject content is similar to that contained in the technical part of the South African qualification, namely: industry background, machine operations and components, maintenance functions, computer skills with a technical project to complete the diploma.

Africa:

African countries with manufacturing facilities (including SADC countries) were searched for applicable qualifications or training programmes, but no relevant qualifications are offered in any of these countries. Similar to international companies, the majority of training is provided by equipment suppliers with three to five day short training courses. The only pulp and paper facility in the SADC outside South Africa is in Swaziland - learners from this facility will be trained according to the South African qualification.

New Zealand:

A comparison with the NZQA was included, because it is an educational structure comparable to the NQF. An internet search of the NZQA revealed three registered qualifications (National Certificates) ranging from Levels 2 to 4 in Pulp and Paper Manufacturing.

The New Zealand "National Certificate in Pulp and Paper Manufacturing (Level 2)" is an introduction to pulp and paper operations containing a compulsory core component consisting of units standards in communication, teamwork, employment relations, health, safety, quality, environmental protection and manufacturing process knowledge. The learner has to choose 10 credits from Elective Group A which contains unit standards dealing with specific pulp and paper industry skills and 19 credits from Elective Group B which is made up of general unit standards such as workplace safety, distribution, business administration and computer skills.

The compulsory core sections of the National Certificates in Pulp and Paper Manufacturing Levels 3 and 4 are common so that people wishing to progress from the NQF Level 3 qualification to the Level 4 qualification have a common grounding in the principles of pulp and paper manufacturing. This core component consist of unit standards with a technical focus such as pumps and valves, chemistry and physics and the fundamentals of process control systems make up.

For competence in the "National Certificate in Pulp and Paper Manufacturing (Level 3)" the learner needs to prove competence in the 28 credits core unit standards, 35 credits from pulp and paper specialisation areas and 27 general electives. The general elective sections of both Level 3 and 4 qualifications also provide recognition for a range of manufacturing and generic industry skills; and cover areas such as workplace safety, distribution, business administration, and communications.

Just as in the South African NQF Level 4 qualification, learners completing the "National Certificate in Pulp and Paper Manufacturing (Level 4)" specialise in either pulpmaking, papermaking or chemical recovery. The learner needs to prove competence in a total of 120 credits which consist of 28 credits core unit standards and 35 credits specialisation electives. If all 28 credits for the core were obtained in the level 3 qualification these credits are reflected here again.

The South African qualifications compare very well with the New Zealand qualifications, but the fact that the South African qualifications have a fundamental component of communication and mathematical unit standards is advantageous for the South African learner.

Australia:

An internet search of the AQF revealed that the following four qualifications are registered on the AQF:

- "Certificate I in Pulp and Paper Manufacturing".
- "Certificate II in Pulp and Paper Manufacturing".
- "Certificate III in Pulp and Paper Manufacturing".
- "Certificate IV in Pulp and Paper Manufacturing".

A comparison with these qualifications was included because the AQF is an educational structure comparable to the NQF.

The new Australian "Certificate I in Pulp and Paper Manufacturing" contains only a compulsory core consisting of five units in communication, safety, quality and the use of hand held tools which all have to be achieved. This qualification is not compulsory for entry to the pulp and paper qualifications as the majority of trainees enter the industry at Certificate II level.

The Level 2 to 4 qualifications all have a compulsory core consisting mainly of communication, safety and quality. The Level 3 and 4 qualifications also include a compulsory unit on problem solving.

From Level 2 onwards the learner has to choose specialisation units from the following range of specialisation areas: Primary resources, pulping operations, chemical recovery and waste paper handling, waste paper operations, stock preparation, wet end operations, dry end operations, paper coating and finishing and converting. The level 2 and 3 qualifications are completed with a choice of two elective units. The Level 2 and 3 elective component consist of a range of safety, emergencies, first aid, training, crange and specialist technical skills Unit Standards.

The new Australian "Certificate IV in Pulp and Paper Manufacturing" has a compulsory core consisting of communication, productivity calculations, OHS policy and procedures, quality and advanced problem solving. This learner already specialises in one specific area and has to make a choice of one specialisation unit from the following range of specialisation areas: Resources, pulping operations, chemical recovery and paper manufacture. The qualification is completed with a choice of three elective units ranging from leadership, workplace relationships, customer care, training and assessment, to crange and sampling units.

The South African qualification includes similar core qualification structures and progressions from NQF Level 2 to NQF Level 4 and also uses separate qualifications to address pulp and paper production and pulp and paper hygiene products manufacturing. The main difference is that the Australian qualification requires of the learner to choose a specialisation area in Level 2, whereas the South African qualification offers the learner the opportunity to gain an overview of all the pulp and paper processes on Level 2 before choosing a specialisation area in Level 3.

Britain:

A comparison with the British qualification was included, because the British pulp and paper industry is very well developed and the NVQ is an educational structure comparable to the NQF. An internet search of the British NVQ and the Scottish SVQ revealed the following level 2 and 3 qualifications:

- The PAA\QSET Level 2 Certificate in Paper Technology.
- The PAA\QSET Level 3 Certificate in Paper Technology.

The South African NQF Level 2 qualification compares very well with the British Level 2 qualification which is made up of six compulsory units in Health and Safety, quality, raw materials, papermaking processes, plant services and process control. The main difference is that the British qualifications contain no fundamental communication and mathematical units.

The PAA\QSET Level 3 Certificate in Paper Technology has a compulsory core containing units on Health and Safety, quality, teamwork and problem solving. The learner has to choose between Group B units and Group C units to complete the qualification. Group B contains only papermaking units, whereas Group C contains general pulp and paper operations units such as chemical recovery, coating and finishing operations.

Being the highest pulp and paper qualification registered on the QCA, this level 3 qualification compares with the content of the South African NQF Level 3 and 4 qualifications, but it is clear that the South African qualification provides the learner with more theoretical knowledge and practical competence. The South African NQF Level 4 qualification also provides the learner with the opportunity to progress to tertiary education.

Summary:

In conclusion, a comparison with similar international qualifications indicates that the focus is the same as those of the benchmark qualifications. Both local and international qualifications place considerable emphasis on safety, quality and problem solving skills and allow the learner to choose from a range of specialisation areas in the paper industry.

The Pulp and Paper Operations qualifications compare well with the best international qualifications and training programmes offered. The compulsory fundamental and technical content incorporated in the qualification will serve to support qualifying learners to make better informed, autonomous decisions within a more compact timeframe than most international learners and will increase transportability of the qualification considerably.

ARTICULATION OPTIONS

This qualification follows a vertical progression from the introductory NQF Level 1, Chemical Operations Qualification and will enable the qualifying learner to progress to a technologist role through the National Certificate in Pulp and Paper Technology, NQF Level 5. In addition, each of these qualifications have elective specialisation areas associated with the different operational areas of a pulp and paper production facility.

Vertical articulation can occur within the pulp and paper industry to the reviewed draft NQF Level 4 F.E.T.C: Pulp and Paper Operations. Vertical articulation into related industries can occur with the following registered NQF Level 4 qualifications:

- ID 48915: Further Education and Training Certificate: Manufacturing and Assembly Operations Supervision, NQF Level 4.
- ID 48919: Further Education and Training Certificate: Measurement, Control and Instrumentation, NQF Level 4.
- ID 58538: Further Education and Training Certificate: Chemical Operations, NQF Level 4.
- New draft: Further Education and Training Certificate: Pulp and paper hygiene products manufacturing, NQF Level 4.

The expertise obtained through these qualifications will also enable qualifying learners to progress horizontally to obtain other process related qualifications within the pulp and paper, chemical and proposed secondary agriculture industries. Horizontal articulation can occur with the following registered NQF Level 3 qualifications:

- ID 22940: Certificate: Process Plant Operation, NQF Level 3.
- ID 58537: National Certificate: Chemical Operations, NQF Level 3.
- New draft: National Certificate: Pulp and paper hygiene products manufacturing, 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.

• Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.

• Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQA's policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.

• Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

In order to assess this qualification, the assessor needs:

- Assessors to meet the requirements of the generic assessor standards.
- Competence against the unit standard "Conduct outcomes-based assessments".
- Detailed documentary proof of educational qualification, practical training undergone, and/or experience gained at an appropriate level in the work concerning pulp and paper operations. This must meet the relevant ETQA policies and guidelines. The subject matter expertise of the assessor can be established through the recognition of prior learning.
- Registration with, or recognition by, the relevant ETQA as specified through an appropriate memorandum of understanding.

NOTES

This qualification replaces qualification 35939, "National Certificate: Pulp and Paper Woodyard Operations", Level 3, 120 credits.

Range statements:

- This qualification addresses the knowledge and competencies required by learners in the pulp and paper industries.
- Knowledge relating to the pulp and paper processing industries includes process specific technology, communication, mathematics, applied science, and SHEQ.
- This qualification may be applicable to other processing operations. This is subject to its acceptance by appropriate subject matter experts.

UNIT STANDARDS

	ID	UNIT STANDARD TITLE	LEVEL	CREDITS
Fundamental	119472	Accommodate audience and context needs in oral/signed communication	Level 3	5
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
Fundamental	9013	Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts	Level 3	4
Fundamental	119457	Interpret and use information from texts	Level 3	5
Fundamental	9012	Investigate life and work related problems using data and probabilities	Level 3	5
Fundamental	119467	Use language and communication in occupational learning programmes	Level 3	5
Fundamental	7456	Use mathematics to investigate and monitor the financial aspects of personal, business and national issues	Level 3	5
Fundamental	119465	Write/present/sign texts for a range of communicative contexts	Level 3	5
Core	244241	Apply knowledge of chemical reactions in a processing environment	Level 3	6
Core	244086	Apply quality procedures in a process plant	Level 3	6
Core	244108	Apply safety, health and environment protection procedures in a process plant	Level 3	6
Core	244085	Respond to emergencies in a process environment	Level 3	6
Core	244087	Solve operating problems in a process plant	Level 3	5
Core	246626	Understand the fundamental principles of screening and cleaning operations	Level 3	6
Elective	246637	Monitor and control product parameters in a manufacturing environment	Level 2	5
Elective	246651	Prepare and supply washed and depithed bagasse	Level 2	4
Elective	244088	Act as the Safety Watcher during the performance of maintenance activities	Level 3	3
Elective	246642	Bleach pulp for the production of paper, board or tissue products	Level 3	15
Elective	246640	Coat paper or board using a coating machine	Level 3	10
Elective	246634	Conduct physical tests on paper, board or tissue	Level 3	5
Elective	246628	Cut/slit sheets of paper, board, pulp or tissue	Level 3	6
Elective	246629	Debark logs using a drum debarker	Level 3	6

	ID	UNIT STANDARD TITLE	LEVEL	CREDITS
Elective	10170	Demonstrate understanding of employment relations in an organisation	Level 3	3
Elective	244090	Demonstrate understanding of the principles of kinematics in physics	Level 3	6
Elective	246649	Demonstrate understanding of the water and effluent treatment processes in the pulp and paper industry	Level 3	6
Elective	244095	Dismantle, assemble and install basic components in a process environment	Level 3	6
Elective	246638	Dry and reel formed paper, board or tissue	Level 3	15
Elective	246635	Generate chlorine dioxide for pulp bleaching	Level 3	15
Elective	246641	Generate white liquor	Level 3	10
Elective	244091	Identify and interpret instrument control loops	Level 3	8
Elective	246644	Increase pulping spent liquor solids	Level 3	12
Elective	244094	Perform and support maintenance functions	Level 3	5
Elective	246627	Perform physical and chemical tests on pulp	Level 3	4
Elective	246633	Perform physical and chemical tests on pulp and paper chemicals	Level 3	4
Elective	246630	Perform physical and chemical tests on raw materials	Level 3	4
Elective	246614	Perform statistical process control in a process environment	Level 3	4
Elective	246636	Perform visual inspection checks to identify paper defects	Level 3	4
Elective	246631	Prepare chemical additives	Level 3	4
Elective	246647	Produce and store wood chips	Level 3	6
Elective	246623	Produce calcium bisulphite cooking liquor for the production of pulp	Level 3	10
Elective	246632	Produce coating slurry	Level 3	10
Elective	246650	Produce crude tall oil by the acidification of Kraft soap skimmings	Level 3	6
Elective	246645	Produce mechanical pulp	Level 3	12
Elective	246646	Produce paper, board or tissue reels using a winder or rewinder	Level 3	10
Elective	246625	Produce papermaking stock	Level 3	12
Elective	246652	Produce supercalendered paper or board	Level 3	6
Elective	246639	Produce unslaked lime using a rotary lime kiln	Level 3	10
Elective	244093	Read and interpret process and instrumentation diagrams	Level 3	4
Elective	246648	Remove spent liquor contaminants from pulp	Level 3	8
Elective	246643	Treat pulp suspension using an oxygen delignification process	Level 3	10
Elective	119078	Use a GUI-based word processor to enhance a document through the use of tables and columns	Level 3	5
Elective	116936	Use a Graphical User Interface (GUI)-based database application to work with simple databases	Level 3	3
Elective	116940	Use a Graphical User Interface (GUI)-based spreadsheet application to solve a given problem	Level 3	6
Elective	114270	Understand the operating principles, processes and variables associated with pulp bleaching	Level 4	10
Elective	114250	Understand the operating principles, processes and variables associated with the drying of paper, board or tissue products	Level 4	10
Elective	114271	Understand the operating principles, processes and variables associated with the coating of paper or board	Level 4	10
Elective	114269	Understand the operating principles, processes and variables in stock preparation in the pulp and paper industry	Level 4	10
Elective	114253	Understand the printing processes and quality requirements for the end use of manufactured paper products	Level 4	10
Elective	110038	Understand the process and variables in woodyard operations	Level 4	10
Elective	114266	Understand the processes and variables in mechanical pulping	Level 4	10



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Produce calcium bisulphite cooking liquor for the production of pulp

SAQA US ID	UNIT STANDARD TITLE		
246623	Produce calcium bisulphite cooking liquor for the production of pulp		
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to the cooking liquor preparation process.

SPECIFIC OUTCOME 2

Explain the quality requirements of raw materials received.

SPECIFIC OUTCOME 3

Assess raw materials quality in accordance with workplace specifications.

SPECIFIC OUTCOME 4

Monitor and control the cooking liquor preparation process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Produce papermaking stock***

SAQA US ID	UNIT STANDARD TITLE		
246625	Produce papermaking stock		
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	12

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to the stock preparation process.

SPECIFIC OUTCOME 2

Explain the quality requirements of raw materials received.

SPECIFIC OUTCOME 3

Assess raw materials quality in accordance with workplace specifications.

SPECIFIC OUTCOME 4

Monitor and control the stock preparation process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:*Understand the fundamental principles of screening and cleaning operations*

SAQA US ID	UNIT STANDARD TITLE		
246626	Understand the fundamental principles of screening and cleaning operations		
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	6

SPECIFIC OUTCOME 1

Discuss typical contraries found in different pulp and paper applications.

SPECIFIC OUTCOME 2

Explain the fundamental operating principles of cleaners (hydrocyclones) and cleaning systems.

SPECIFIC OUTCOME 3

Explain the fundamental operating principles of screens and screening systems.

SPECIFIC OUTCOME 4

Select the type of screen or cleaner to use for different process applications.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Core	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Perform physical and chemical tests on pulp

SAQA US ID		UNIT STANDARD TITLE	
246627		Perform physical and chemical tests on pulp	
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	4

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to physical and chemical tests carried out on pulp.

SPECIFIC OUTCOME 2

Explain the physical and chemical tests, tools and equipment.

SPECIFIC OUTCOME 3

Perform routine checks on the selected test equipment.

SPECIFIC OUTCOME 4

Perform selected physical and chemical tests on pulp.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Cut/slit sheets of paper, board, pulp or tissue***

SAQA US ID	UNIT STANDARD TITLE		
246628	Cut/slit sheets of paper, board, pulp or tissue		
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	6

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to the cutting/slitting process.

SPECIFIC OUTCOME 2

Explain the quality requirements of raw materials received.

SPECIFIC OUTCOME 3

Assess raw materials quality in accordance with workplace specifications.

SPECIFIC OUTCOME 4

Monitor and control the cutting/slitting process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Debark logs using a drum debarker***

SAQA US ID	UNIT STANDARD TITLE		
246629	Debark logs using a drum debarker		
ORIGINATOR	PROVIDER		
SGB Pulp and Paper			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Engineering and Related Design		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	6

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to the debarking function.

SPECIFIC OUTCOME 2

Explain the quality requirements of raw materials received.

SPECIFIC OUTCOME 3

Assess raw materials quality in accordance with workplace specifications.

SPECIFIC OUTCOME 4

Monitor and control the debarking process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Perform physical and chemical tests on raw materials

SAQA US ID	UNIT STANDARD TITLE		
246630	Perform physical and chemical tests on raw materials		
ORIGINATOR	PROVIDER		
SGB Pulp and Paper			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Engineering and Related Design		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	4

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to physical and chemical tests carried out on raw materials.

SPECIFIC OUTCOME 2

Explain the physical and chemical tests, tools and equipment.

SPECIFIC OUTCOME 3

Perform routine checks on the selected test equipment.

SPECIFIC OUTCOME 4

Perform selected physical and chemical tests on raw materials.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Prepare chemical additives***

SAQA US ID		UNIT STANDARD TITLE	
246631		Prepare chemical additives	
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	4

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to the preparation of chemical additives.

SPECIFIC OUTCOME 2

Explain the quality requirements of raw materials received.

SPECIFIC OUTCOME 3

Assess raw materials quality in accordance with workplace specifications.

SPECIFIC OUTCOME 4

Monitor and control the preparation of chemical additives.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Produce coating slurry***

SAQA US ID		UNIT STANDARD TITLE	
246632		Produce coating slurry	
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to the production of coating slurry.

SPECIFIC OUTCOME 2

Explain the quality requirements of raw materials received.

SPECIFIC OUTCOME 3

Assess raw materials quality in accordance with workplace specifications.

SPECIFIC OUTCOME 4

Monitor and control the production of coating slurry.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Perform physical and chemical tests on pulp and paper chemicals***

SAQA US ID		UNIT STANDARD TITLE	
246633		Perform physical and chemical tests on pulp and paper chemicals	
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	4

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to physical and chemical tests carried out on pulp and paper chemicals.

SPECIFIC OUTCOME 2

Explain the physical and chemical tests, tools and equipment.

SPECIFIC OUTCOME 3

Perform routine checks on the selected test equipment.

SPECIFIC OUTCOME 4

Perform selected physical and chemical tests on pulp and paper chemicals.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Conduct physical tests on paper, board or tissue

SAQA US ID		UNIT STANDARD TITLE	
246634		Conduct physical tests on paper, board or tissue	
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	5

SPECIFIC OUTCOME 1

Explain the fundamental principles of tests carried out on paper, board or tissue.

SPECIFIC OUTCOME 2

Explain the basic procedures applicable to the selected paper, board or tissue tests.

SPECIFIC OUTCOME 3

Perform routine checks using test equipment.

SPECIFIC OUTCOME 4

Select and carry out physical tests on paper, board or tissue.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Generate chlorine dioxide for pulp bleaching***

SAQA US ID		UNIT STANDARD TITLE	
246635		Generate chlorine dioxide for pulp bleaching	
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	15

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to the bleaching process.

SPECIFIC OUTCOME 2

Explain the quality requirements of raw materials received.

SPECIFIC OUTCOME 3

Assess raw materials quality in accordance with workplace specifications.

SPECIFIC OUTCOME 4

Monitor and control the bleaching process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Perform visual inspection checks to identify paper defects

SAQA US ID		UNIT STANDARD TITLE	
246636		Perform visual inspection checks to identify paper defects	
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	4

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to visual checks.

SPECIFIC OUTCOME 2

Identify and discuss paper defects common to the paper industry.

SPECIFIC OUTCOME 3

Identify and discuss paper defects caused by equipment faults.

SPECIFIC OUTCOME 4

Perform tests and record and report data related to inspections.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Monitor and control product parameters in a manufacturing environment

SAQA US ID	UNIT STANDARD TITLE		
246637	Monitor and control product parameters in a manufacturing environment		
ORIGINATOR	PROVIDER		
SGB Pulp and Paper			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Engineering and Related Design		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	5

SPECIFIC OUTCOME 1

Demonstrate an understanding of monitoring product parameters in a manufacturing environment.

SPECIFIC OUTCOME 2

Assess product suitability by means of measurements, checks and simple tests.

SPECIFIC OUTCOME 3

Plot values and compare these values against maximum/minimum control limits.

SPECIFIC OUTCOME 4

Take corrective action pertaining to measured values, checks and tests.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Dry and reel formed paper, board or tissue***

SAQA US ID	UNIT STANDARD TITLE		
246638	Dry and reel formed paper, board or tissue		
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	15

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to the drying and reeling process.

SPECIFIC OUTCOME 2

Explain the quality requirements of raw materials received.

SPECIFIC OUTCOME 3

Assess raw materials quality in accordance with workplace specifications.

SPECIFIC OUTCOME 4

Monitor and control the drying and reeling process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Produce unslaked lime using a rotary lime kiln***

SAQA US ID		UNIT STANDARD TITLE	
246639		Produce unslaked lime using a rotary lime kiln	
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to the production of unslaked lime.

SPECIFIC OUTCOME 2

Explain the quality requirements of raw materials received.

SPECIFIC OUTCOME 3

Assess raw materials quality in accordance with workplace specifications.

SPECIFIC OUTCOME 4

Monitor and control the production of unslaked lime.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Coat paper or board using a coating machine***

SAQA US ID	UNIT STANDARD TITLE		
246640	Coat paper or board using a coating machine		
ORIGINATOR	PROVIDER		
SGB Pulp and Paper			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Engineering and Related Design		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to the coating process.

SPECIFIC OUTCOME 2

Explain the quality requirements of raw materials received.

SPECIFIC OUTCOME 3

Assess raw materials quality in accordance with workplace specifications.

SPECIFIC OUTCOME 4

Monitor and control the coating process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:**Generate white liquor**

SAQA US ID		UNIT STANDARD TITLE	
246641		Generate white liquor	
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to the causticizing process.

SPECIFIC OUTCOME 2

Explain the quality requirements of raw materials received.

SPECIFIC OUTCOME 3

Assess raw materials quality in accordance with workplace specifications.

SPECIFIC OUTCOME 4

Monitor and control the causticizing process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Bleach pulp for the production of paper, board or tissue products***

SAQA US ID	UNIT STANDARD TITLE		
246642	Bleach pulp for the production of paper, board or tissue products		
ORIGINATOR	PROVIDER		
SGB Pulp and Paper			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Engineering and Related Design		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	15

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to the bleaching process.

SPECIFIC OUTCOME 2

Explain the quality requirements of raw materials (unbleached pulp) received.

SPECIFIC OUTCOME 3

Assess raw materials (unbleached pulp) quality in accordance with workplace specifications.

SPECIFIC OUTCOME 4

Monitor and control the bleaching process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Treat pulp suspension using an oxygen delignification process***

SAQA US ID		UNIT STANDARD TITLE	
246643		Treat pulp suspension using an oxygen delignification process	
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to the delignification process.

SPECIFIC OUTCOME 2

Explain the quality requirements of raw materials (pulp) received.

SPECIFIC OUTCOME 3

Assess raw materials (pulp) quality in accordance with workplace specifications.

SPECIFIC OUTCOME 4

Monitor and control the delignification process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Increase pulping spent liquor solids***

SAQA US ID		UNIT STANDARD TITLE	
246644		Increase pulping spent liquor solids	
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	12

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to the evaporation process.

SPECIFIC OUTCOME 2

Explain the quality requirements of raw materials received.

SPECIFIC OUTCOME 3

Assess raw materials quality in accordance with workplace specifications.

SPECIFIC OUTCOME 4

Monitor and control the evaporation process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Produce mechanical pulp***

SAQA US ID		UNIT STANDARD TITLE	
246645		Produce mechanical pulp	
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	12

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to the mechanical pulping process.

SPECIFIC OUTCOME 2

Explain the quality requirements of raw materials (logs or wood chips) received.

SPECIFIC OUTCOME 3

Assess raw materials (logs or wood chips) quality in accordance with workplace specifications.

SPECIFIC OUTCOME 4

Monitor and control the mechanical pulping process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:*Produce paper, board or tissue reels using a winder or rewinder*

SAQA US ID	UNIT STANDARD TITLE		
246646	Produce paper, board or tissue reels using a winder or rewinder		
ORIGINATOR	PROVIDER		
SGB Pulp and Paper			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Engineering and Related Design		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to the winding/rewinding process.

SPECIFIC OUTCOME 2

Explain the quality requirements of raw materials received.

SPECIFIC OUTCOME 3

Assess raw materials quality in accordance with workplace specifications.

SPECIFIC OUTCOME 4

Monitor and control the winding/rewinding process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Produce and store wood chips***

SAQA US ID		UNIT STANDARD TITLE	
246647		Produce and store wood chips	
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	6

SPECIFIC OUTCOME 1

Explain the fundamental principles of the production and storage of wood chips.

SPECIFIC OUTCOME 2

Explain the quality requirements of raw materials received.

SPECIFIC OUTCOME 3

Assess raw materials quality in accordance with workplace specifications.

SPECIFIC OUTCOME 4

Monitor and control the production and storage of wood chips.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Remove spent liquor contaminants from pulp***

SAQA US ID		UNIT STANDARD TITLE	
246648		Remove spent liquor contaminants from pulp	
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	8

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to the process of removing spent liquor contaminants from pulp.

SPECIFIC OUTCOME 2

Explain the quality requirements of raw materials received.

SPECIFIC OUTCOME 3

Assess raw materials quality in accordance with workplace specifications.

SPECIFIC OUTCOME 4

Monitor and control the contaminant removal process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Demonstrate understanding of the water and effluent treatment processes in the pulp and paper industry

SAQA US ID	UNIT STANDARD TITLE		
246649	Demonstrate understanding of the water and effluent treatment processes in the pulp and paper industry		
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	6

SPECIFIC OUTCOME 1

Explain the water requirements for pulp.

SPECIFIC OUTCOME 2

Explain the fundamental principles applicable to the water treatment process.

SPECIFIC OUTCOME 3

Explain the fundamental principles applicable to the effluent treatment process.

SPECIFIC OUTCOME 4

Monitor and control the water treatment process.

SPECIFIC OUTCOME 5

Monitor and control the effluent treatment process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Produce crude tall oil by the acidification of Kraft soap skimmings

SAQA US ID	UNIT STANDARD TITLE		
246650	Produce crude tall oil by the acidification of Kraft soap skimmings		
ORIGINATOR	PROVIDER		
SGB Pulp and Paper			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Engineering and Related Design		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	6

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to the crude tall oil production process.

SPECIFIC OUTCOME 2

Explain the quality requirements of raw materials received.

SPECIFIC OUTCOME 3

Assess raw materials quality in accordance with workplace specifications.

SPECIFIC OUTCOME 4

Monitor and control the crude tall oil production process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Prepare and supply washed and depithed bagasse***

SAQA US ID		UNIT STANDARD TITLE	
246651		Prepare and supply washed and depithed bagasse	
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	4

SPECIFIC OUTCOME 1

Explain washed and depithed bagasse preparation and supply principles.

SPECIFIC OUTCOME 2

Explain and apply procedures related to the quality of bagasse raw materials.

SPECIFIC OUTCOME 3

Assess the quality of bagasse raw materials.

SPECIFIC OUTCOME 4

Monitor and control the bagasse preparation and supply process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Produce supercalendered paper or board***

SAQA US ID		UNIT STANDARD TITLE	
246652		Produce supercalendered paper or board	
ORIGINATOR		PROVIDER	
SGB Pulp and Paper			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	6

SPECIFIC OUTCOME 1

Explain the fundamental principles applicable to the supercalendering process.

SPECIFIC OUTCOME 2

Explain the quality requirements of raw materials received.

SPECIFIC OUTCOME 3

Assess raw materials quality in accordance with workplace specifications.

SPECIFIC OUTCOME 4

Monitor and control the supercalendering process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Elective	59039	National Certificate: Pulp and Paper Operations	Level 3	Draft - Prep for P Comment	