No. 1163 **14 December 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.saqa.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 28 January 2008.*** All correspondence should be marked **Standards Setting – Pulp and Paper** and addressed to

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SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:
Further Education and Training Certificate: Tissue Conversion

SAQA QUAL ID	*QUALIFICATION TITLE*		
59037	Further Education and Training Certificate: Tissue Conversion		
ORIGINATOR		*PROVIDER*	
SGB Pulp and Paper			
QUALIFICATION TYPE	*FIELD*	*SUBFIELD*	
Further Ed and Training Cert	6 - Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	*MINIMUM CREDITS*	*NQF LEVEL*	*QUAL CLASS*
Undefined	136	Level 4	Regular-Unit Stds Based

PURPOSE AND RATIONALE OF THE QUALIFICATION
Purpose:

This qualification is used to recognise the competence of people to perform, control and coordinate machine operations in a tissue conversion operation. It also provides the basis upon which further related learning and career development can take place.

Through the employment of competent operating personnel, employers have confidence that this critical work in the industry is efficiently carried out. This competence provides the foundation needed to take responsibility for a significant process in the pulp and paper industry.

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

Qualifying learners will:

- Have a detailed understanding of each of the processes used in tissue conversion.
- Fulfil high level technical functions during start-up and shutdown of equipment.
- Coordinate production activities through all operational stages.
- Participate as operational expert in task teams to resolve plant problems, implement safety, health, environmental and quality procedures and improve plant performance.
- Have mathematical, science, reading, writing and speaking competencies relevant to the pulp and paper industry.

Rationale:

This qualification is the highest level in a series of qualifications for people working in the tissue conversion field. The qualification reflects the generic workplace-based needs that a learner requires in the pulp and paper industry. The needs, as verified by various industry forums, are expressed by employers as well as employees, for both now and the future.

This qualification provides the learner with accessibility to employment in a supervisory role in various production jobs in the pulp and paper industry. While the learning specified within this qualification is contextualised to the pulp and paper industry, the qualification has been constructed in such a way that the learner will be able, with some further learning, to adapt the skills and knowledge to other manufacturing or processing industries. The qualification therefore

supports the principle of portability within the South African manufacturing industry and thus provides increased employability to the qualifying learner and adds value to society and the economy by creating a pool of learners with a high level of technical manufacturing skills.

RECOGNIZE PREVIOUS LEARNING?
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LEARNING ASSUMED IN PLACE
The learning assumed to be in place is necessary to ensure the learner has the ability to achieve the unit standards in the qualification. The following is the learning assumed to be in place:

- National Certificate: Tissue Conversion, NQF Level 3.

Embedded knowledge upon commencement of the qualification includes:

- Language, mathematics, natural science and technology principles at NQF Level 3.

Recognition of Prior Learning:

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

Access to the Qualification:

Access to the qualification is open. 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 in a first language at NQF Level 4, 20 credits in the field of Communication in a second language at NQF Level 3 plus 16 credits in the field of Mathematical Literacy. In the
Fundamental Component the learner must therefore demonstrate his/her competence in a total of 56 credits.

The unit standards in the compulsory Core Component of the qualification reflect the skills and competencies needed for building expertise in the conversion field. In the Core Component, the learner must demonstrate his/her competence in the total of 69 credits.

The Elective Component of the qualification enables the learner to pursue the general aspects to support team performance, life skills, business or computer skills. The learner must demonstrate his/her competence in a minimum of 11 credits selected from the Elective.

EXIT LEVEL OUTCOMES
1. Set-up, start-up, monitor and coordinate conversion operations.

2. Supervise and monitor safety, health, and environmental procedures.

3. Solve operational problems in pulp and paper conversion processes.

4. Improve production and quality.

Critical Cross-field Outcomes:

While performing integrated conversion functions, qualifying learners can:

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

- Applying knowledge and comprehension of safety procedures.
  - Evident in Exit Level Outcome/s 1, 2.
- Solve operating problems.
  - Evident in Exit Level Outcome/s 1, 2, 3, 4.
- Implement corrective action.
  - Evident in Exit Level Outcome/s 1, 2, 3, 4.

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

- Working in a coordinated team.
  - Evident in Exit Level Outcome/s 1, 2, 3, 4.
- Supervise others in the conversion operation.
  - Evident in Exit Level Outcome/s 1, 2, 4.
- Co-ordinating one's work with that of others in the direct surrounding area, suppliers of molten glass and receivers of formed products.
  - Evident in Exit Level Outcome/s 1, 2, 3.

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

- Planning and implementing one's own start-up and shutdown activities.
  - Evident in Exit Level Outcome/s 1.
- Planning and implementing one's own routine operational functions.
  - Evident in Exit Level Outcome/s 1, 2, 3, 4.
- Planning and implementing corrective action.
  - Evident in Exit Level Outcome/s 1, 2, 3, 4.

4. Collect, analyse, organise and critically evaluate information by:

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

5. 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/s 1, 3, 4.
- Preparing and presenting reports.
  - Evident in Exit Level Outcome/s 1, 2, 3, 4.

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

- Working according to health and safety regulations.

○ Evident in Exit Level Outcome/s 1, 2.
• Working according to quality and productivity principles.
○ Evident in Exit Level Outcome/s 1, 3, 4.
• Controlling technologically advanced production equipment according to operating procedures.
○ Evident in Exit Level Outcome/s 1, 3, 4.
• Using mathematical and scientific principles.
○ Evident in Exit Level Outcome/s 3, 4.
• Working and interpreting technologically advanced instrumentation and computer systems.
○ Evident in Exit Level Outcome/s 1, 2, 3.

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

• Monitoring and controlling quality assurance practices.
○ Evident in Exit Level Outcome/s 2, 3.
• Adjusting equipment and machinery while taking cognisance of the downstream impact.
○ Evident in Exit Level Outcome/s 1, 3, 4.

8. 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/s 1, 2.
• Maintaining and applying quality practices in the production environment.
○ Evident in Exit Level Outcome/s 3, 4.
• Performing core operating functions.
○ Evident in Exit Level Outcome/s 1.
• Performing problem solving functions.
○ Evident in all Exit Level Outcomes.

ASSOCIATED ASSESSMENT CRITERIA

Associated Assessement Criteria for Exit Level Outcome 1:

• Perform set-up of conversion equipment.
• Perform start-up of conversion equipment.
• Monitor conversion equipment parameters.
• Perform shut-down of the process.
• Coordinate conversion operations.

Associated Assessement Criteria for Exit Level Outcome 2:

• Monitor statutory rights, responsibilities and liability regarding safety.
• Supervise and monitor the application of safety, health and environmental objectives, standards and regulations.
• Supervise safety and environmental inspections in work area.
• Identify unsafe conditions and take corrective action.
• Report on safety conditions in work area.

Associated Assessement Criteria for Exit Level Outcome 3:

• Investigate and quantify operational deviation from the standard.
• Establish likely cause of the deviation experienced.
• Identify and implement corrective action.
• Monitor and evaluate the impact of the corrective action.

Associated Assessement Criteria for Exit Level Outcome 4:

- Participate in productivity and quality improvement programmes.
- Monitor and supervise product quality.
- Perform statistical process control.
- Implement management decisions regarding productivity and quality.

Integrated Assessment:

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

Unit standards in the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

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

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

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

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

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

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

INTERNATIONAL COMPARABILITY

International comparison was made with Australia, New Zealand, Britain, Scotland, Canada, the USA, Sweden, Finland, Germany and relevant African countries.

The "best practice" from the Australian and New Zealand qualifications was used in the generation of the South African qualification. Similar core qualification structures and progressions are therefore evident in the Level 2 to Level 4 qualifications.

New Zealand:

The New Zealand "National Certificate in Pulp and Paper Manufacturing (Tissue Converting) (Level 4)" has a small compulsory core component consisting of Unit Standards covering safety, quality and product manufacturing knowledge. The first elective component of the qualification allows learners to select a range of specific tissue manufacturing Unit Standards. The emphasis of all these Unit Standards is the changeover and adjustment of different mechanical components. The other electives available in the qualification include education, health, management and manufacturing skills.

Australia:

The new Australian "Certificate IV in Pulp and Paper Manufacture (Finishing and Converting)" has a compulsory core consisting of safety, quality and advanced problem solving of finishing and converting systems. The elective component consists of a range of communication, training and management Unit Standards.

Africa:

No relevant qualifications are offered in any African country.

United States of America, Canada and Scandinavia:

In addition to a number of pulp and paper related university degrees, TAPPI (a technical association for the pulp, paper and converting industry) offers short, technical courses for operating staff. No comparable qualifications are offered.

Germany:

Several German Universities offer a three year Paper Technology Diploma. Although these diplomas also have a strong workplace emphasis, they are more comparable to South African diplomas 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.

British NVQ or the Scottish SVQ:

There are no comparable qualifications registered by the British NVQ or the Scottish SVQ.

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

ARTICULATION OPTIONS

This qualification follows a vertical progression from the NQF Level 3, Tissue Conversion Qualification and will enable the qualifying learner to progress to National Diploma in Pulp and Paper Technology at NQF Level 5. This qualification is suitable for a wide range of technically oriented supervisory careers.

This qualification allows a learner vertical progress to higher qualifications in the pulp and paper industry, namely:

- ID 59039: National Diploma in Pulp and Paper Technology (Level 5).
- Any other higher pulp and paper qualification still to be developed for the pulp and paper industry.

This qualification is suitable for a wide range of technically oriented supervisory careers.

The generic knowledge and expertise enables the learner to progress horizontally into the reviewed draft F.E.T.C.: Pulp and Paper Operations NQF Level 4, or to develop a career where knowledge of processing operations is necessary. These include manufacturing qualifications within, amongst others, the engineering, construction. chemical and pulp and paper industries.

Horizontal articulation within the processing industry can occur with the following registered NQF Level 4 qualifications:

- ID 48915: Further.Education.Training.Certificate.: Manufacturing and Assembly Operations Supervision.
- ID 48919: Further.Education.Training.Certificate.: Measurement, Control and Instrumentation.

The fundamental and generic core learning components will equip the learner with credits which will be useful in other fields of learning that the learner might wish to change to at any future stage.

MODERATION OPTIONS

- An assessor, accredited with a relevant NQF Level 4 or higher qualification, will assess the learner's competency.

- Only an assessor with at least 3 years experience in conversion operations will assess the learner's competency.

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

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

- The applicant needs well-developed subject matter and assessment experience.
- The assessor needs to be competent in the planning and conducting of assessment of learning outcomes as described in the unit standard "Conduct outcomes-based assessment" at NQF Level 5.
- The subject matter experience must be well developed within the field of pulp and paper conversion operations, procedures, management and quality assurance.
- The applicant should have a similar qualification than this one, with a minimum of 3 years field experience after he/she has completed the qualification.
- The subject matter experience of the assessor can be established by recognition of prior learning.
- The assessors need to be registered with the relevant Education and Training Quality Assurance Body.
- Detailed documentary proof of educational qualification, practical training undergone, and experience gained by the applicant must be provided (portfolio of evidence).

NOTES

UNIT STANDARDS

	ID	UNIT STANDARD TITLE	LEVEL	CREDITS
Fundamental	8968	Accommodate audience and context needs in oral communication	Level 3	5
Fundamental	8969	Interpret and use information from texts	Level 3	5

	ID	UNIT STANDARD TITLE	LEVEL	CREDITS
Fundamental	8973	Use language and communication in occupational learning programmes	Level 3	5
Fundamental	8970	Write texts for a range of communicative contexts	Level 3	5
Fundamental	9015	Apply knowledge of statistics and probability to critically interrogate and effectively communicate findings on life related problems	Level 4	6
Fundamental	8974	Engage in sustained oral communication and evaluate spoken texts	Level 4	5
Fundamental	8975	Read analyse and respond to a variety of texts	Level 4	5
Fundamental	9016	Represent analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts	Level 4	4
Fundamental	8979	Use language and communication in occupational learning programmes	Level 4	5
ndamental	7468	Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues	Level 4	6
Fundamental	8976	Write for a wide range of contexts	Level 4	5
Core	244098	Perform statistical process control in a process environment	Level 3	4
Core	9890	Anticipate and troubleshoot machine functioning	Level 4	16
Core	246607	Monitor and coordinate a tissue conversion process	Level 4	5
Core	13224	Monitor the application of safety, health and environmental protection procedures	Level 4	4
Core	246609	Operate a tissue conversion process	Level 4	10
Core	246617	Participate in a problem solving work group	Level 4	6
Core	246622	Participate in productivity and quality improvement programmes	Level 4	12
Core	246611	Set up a tissue conversion operation	Level 4	12
Elective	113909	Coach a team member in order to enhance individual performance in work environment	Level 3	5
Elective	13915	Demonstrate knowledge and understanding of HIV/AIDS in a workplace, and its effects on a business sub-sector, own organisation and a specific workplace	Level 3	4
Elective	10170	Demonstrate understanding of employment relations in an organisation	Level 3	3
Elective	12457	Develop learning strategies and techniques	Level 3	3
Elective	9530	Manage work time effectively	Level 3	3
Elective	119078	Use a GUI-based word processor to enhance a document through the use of tables and columns	Level 3	5
Elective	12544	Facilitate the preparation and presentation of evidence for assessment	Level 4	4
Elective	13947	Motivate a team	Level 4	6
Elective	116943	Using a Graphical User Interface (GUI)-based spreadsheet application, enhance the functionality and apply graph /charts to a spreadsheet	Level 4	3

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UNIT STANDARD:

Monitor and coordinate a tissue conversion process

SAQA US ID	*UNIT STANDARD TITLE*		
246607	Monitor and coordinate a tissue conversion process		
ORIGINATOR		*PROVIDER*	
SGB Pulp and Paper			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	5

SPECIFIC OUTCOME 1
Plan work tasks.

SPECIFIC OUTCOME 2
Allocate resources for the operation.

SPECIFIC OUTCOME 3
Complete and submit reports.

SPECIFIC OUTCOME 4
Coordinate routine production and maintenance tasks.

SPECIFIC OUTCOME 5
Optimise efficiency of the operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Core	59037	Further Education and Training Certificate: Tissue Conversion	Level 4	Draft - Prep for P Comment	

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UNIT STANDARD:

Operate a tissue conversion process

SAQA US ID	*UNIT STANDARD TITLE*		
246609	Operate a tissue conversion process		
ORIGINATOR		*PROVIDER*	
SGB Pulp and Paper			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	10

SPECIFIC OUTCOME 1
Establish conditions for start-up.

SPECIFIC OUTCOME 2
Start-up the conversion operation.

SPECIFIC OUTCOME 3
Achieve and maintain normal operating conditions.

SPECIFIC OUTCOME 4
Adjust and record abnormal process operating conditions.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Core	59037	Further Education and Training Certificate: Tissue Conversion	Level 4	Draft - Prep for P Comment	

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Set up a tissue conversion operation

SAQA US ID	*UNIT STANDARD TITLE*		
246611	Set up a tissue conversion operation		
ORIGINATOR		*PROVIDER*	
SGB Pulp and Paper			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	12

SPECIFIC OUTCOME 1
Understand the importance of setting up the process correctly.

SPECIFIC OUTCOME 2
Set up the process in accordance with standard operating procedures and good run settings.

SPECIFIC OUTCOME 3
Communicate and record process settings and adjustments made.

SPECIFIC OUTCOME 4
Verify pre-start-up conditions.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Core	59037	Further Education and Training Certificate: Tissue Conversion	Level 4	Draft - Prep for P Comment	

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Participate in a problem solving work group

SAQA US ID	*UNIT STANDARD TITLE*		
246617	Participate in a problem solving work group		
ORIGINATOR		*PROVIDER*	
SGB Pulp and Paper			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	6

SPECIFIC OUTCOME 1
Explain the problem solving process.

SPECIFIC OUTCOME 2
Identify deviating events.

SPECIFIC OUTCOME 3
Collect data relevant to solving the problem.

SPECIFIC OUTCOME 4
Contribute to the analyses of causal factors and the identification of the cause of the problem.

SPECIFIC OUTCOME 5
Contribute to implementing solutions and carry out follow-up activities.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Core	59037	Further Education and Training Certificate: Tissue Conversion	Level 4	Draft - Prep for P Comment	

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Participate in productivity and quality improvement programmes

SAQA US ID	*UNIT STANDARD TITLE*		
246622	Participate in productivity and quality improvement programmes		
ORIGINATOR		*PROVIDER*	
SGB Pulp and Paper			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	12

SPECIFIC OUTCOME 1
Understand the variables that affect productivity.

SPECIFIC OUTCOME 2
Monitor and improve operational productivity.

SPECIFIC OUTCOME 3
Assess basic productivity improvement options.

SPECIFIC OUTCOME 4
Contribute to small project based efficiency and quality improvement programmes.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Core	59037	Further Education and Training Certificate: Tissue Conversion	Level 4	Draft - Prep for P Comment	