No. 844 **15 August 2008**

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

Chemical Industries

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 15 September 2008.*** All correspondence should be marked **Standards Setting – SGB for Chemical Industries** and addressed to

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

DR. S. BHIKHA
DIRECTOR: STANDARDS SETTING AND DEVELOPMENT

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:
National Certificate: Molten Glass Production

SAQA QUAL ID	*QUALIFICATION TITLE*		
63349	National Certificate: Molten Glass Production		
ORIGINATOR		*PROVIDER*	
Chemical Industries SGB			
QUALIFICATION TYPE	*FIELD*	*SUBFIELD*	
National Certificate	6 - Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	*MINIMUM CREDITS*	*NQF LEVEL*	*QUAL CLASS*
Undefined	120	Level 3	Regular-Unit Stds Based

This qualification replaces:

Qual ID	Qualification Title	NQF Level	Min Credits	Replacement Status
48434	National Certificate: Molten Glass Production	Level 3	120	Will occur as soon as 63349 is registered

PURPOSE AND RATIONALE OF THE QUALIFICATION
Purpose:

This qualification is used as an introduction to molten glass production. This competence provides the foundation needed to take responsibility for a complete glass melting operation. It also provides the basis upon which further related learning and career development can take place

On completion of this qualification learners will have a good foundational understanding of the scientific principles applicable to glass melting in order to more effectively operate and solve any problems in a glass melting plant. Learners will also be able to monitor and control a glass melting operation based on both general operating principles as well as workplace instructions and finally, learners will be able to address a range of workplace emergencies that they may encounter.

Through the employment of competent operating personnel, employers have confidence that the critical work in the industry is efficiently carried out.

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.

Rationale:

This qualification replaces Molten Glass Production NQF Level 3, ID 48434.

The other qualifications with some relevance to this industry are those aimed at the manufacturing, chemical operations, production and pharmaceutical industries. However, not

one of these qualifications has enough relevance to molten glass production to be used as a basis for this qualification.

This qualification is for people working in molten glass production and who need to progress beyond NQF Level 2. The qualification reflects the common workplace-based and non-specific needs that learners require in molten glass production, before progressing to learning at a higher level. Typical learners are operating personnel working in a molten glass production environment.

The glass industry is well established in South Africa and its success is dependant upon the efficient production of molten glass. Achievement of this objective is largely dependant upon the competence, recognised by this qualification, of the people who operate glass melting equipment. An adequate number of people with these skills are needed to ensure that the production units in South Africa operate productively.

Competence in molten glass production requires appropriate general and glass specific knowledge as well as the practical application of this knowledge. Expertise in operating production equipment and controlling a melting process are further requirements for competence. This knowledge and expertise can form a basis for further learning, particularly in the production/operational, engineering and supervisory aspects of glass production and similar industries in the chemical and other manufacturing sectors.

RECOGNIZE PREVIOUS LEARNING?
Y

LEARNING ASSUMED IN PLACE
It is assumed that learners are already competent in communication and mathematical literacy at NQF Level 2.

Most learners accessing this qualification will be competent in operating a batch mixing facility as found in an integrated glass operation. They will also have expertise in operating equipment in a production or manufacturing environment and in the application of process related technologies in these operations.

When learners do not have this learning assumed to be in place, appropriate adjustments to the learning process are required.

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.

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. A learner wishing to be assessed towards this qualification may arrange to do so without attending any further training or education. The assessor and the learner will jointly decide on the most appropriate method to be taken.

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 Mathematical Literacy.

The unit standards in the compulsory Core Component of the qualification reflect the skills and competencies needed for building expertise in glass melting. In the Core Component, the learner must demonstrate his/her competence in the total of 37 credits.

The Elective Component of the qualification requires the learner to select additional Unit Standards covering aspects such as related technologies, quality, safety, maintenance, teamwork and computer skills. In total the learner must demonstrate his/her competence in a minimum of 47 credits selected from the Elective component.

Elective Component: Choose a minimum of 47 credits; NLRD ID; Level; Credits:

> Demonstrate understanding of electrostatic precipitator technology; ID 258077; Level 3; 6 Credits.
> Perform visual inspection checks to identify glass defects; ID 258078; Level 3; 4 Credits.
> Demonstrate an understanding of the refractory materials, products and processes; ID 13974; Level 3; 5 Credits.
> Identify and interpret instrument control loops; ID 244091; Level 3; 8 Credits.
> Monitor critical control points (CCPs) as an integral part of a hazard analysis critical control point (HACCP) system; ID 120239; Level 3; 6 Credits.
> Apply elementary statistical process control principles; ID 244076; Level 2; 6 Credits.
> Apply safety, health and environment protection procedures in a process plant; ID 244108; Level 3; 6 Credits.
> Demonstrate understanding of a work permit system; ID 244078; Level 2; 3 Credits.
> Perform and support maintenance functions; ID 244094; Level 3; 5 Credits.
> Dismantle, assemble and install basic components in a process environment; ID 244095; Level 3; 6 Credits.
> Supervise work unit to achieve work unit objectives (individuals and teams); ID 10981; Level 4; 12 Credits.
> Conduct safety and health representation activities; ID 116518; Level 2; 3 Credits.
> Capture numerical and text information on an electronic database; ID 114981; Level 2; 2 Credits.
> Use a GUI based word processor to enhance a document through tables and columns; ID 119078; Level 3; 5 Credits.
> Use a Graphical User Interface (GUI)-based spreadsheet application to create and edit spreadsheets; ID 116937; Level 2; 4 Credits.

EXIT LEVEL OUTCOMES
Demonstrate an understanding of the underlying technologies and operating principles used in glass melting, namely:

> Understand glass chemistry relevant to a glass melting operation.
> Monitor and control the glass melting process.
> Respond to the emergencies that may occur in a glass melting operation.

1. Demonstrate an understanding of glass chemistry relevant to a glass melting operation.

2. Monitor and control the glass melting process using relevant problem solving methods and standard operating procedures.

3. Apply emergency procedures in a glass melting operation.

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:

While involved in glass melting operations, qualifying learners can:

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

> Solving problems experienced with the glass furnace, its ancillary systems and the quality of materials used or produced in the process.
> Evident in Exit Level Outcome 2.
> Assessing emergency conditions and addressing equipment failure and serious injury effectively.
> Evident in Exit Level Outcome 3

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

> Keeping co-workers informed of the condition of the glass melting operation.
> Evident in Exit Level Outcome 2.
> Addressing emergencies in a coordinated way together with team members.
> Evident in Exit Level Outcome 3.

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

> Systematic organisation of glass properties and their impact on molten glass operations.
> Evident in Exit Level Outcome 1.
> Systematic monitoring and controlling of a glass furnace, its ancillary systems and the quality of process materials.
> Evident in Exit Level Outcome 2.
> Logical assessment and addressing of emergency conditions.
> Evident in Exit Level Outcome 3.

Collect, analyse, organise and critically evaluate information by:

> Systematic organisation of glass properties and their impact on molten glass operations.
> Evident in Exit Level Outcome 1.
> Systematic monitoring of a glass furnace, its ancillary systems and the quality of process materials through data collection.
> Evident in Exit Level Outcome 2.
> Systematic collection of information to assess an emergency condition.
> Evident in Exit Level Outcome 3.

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

> Communicating glass properties in appropriate scientific language and formulae.
> Evident in Exit Level Outcome 1.
> Capturing data collected during the monitoring process accurately.
> Evident in Exit Level Outcome 2.
> Verbally communicating emergency conditions clearly and drafting a written report.
> Evident in Exit Level Outcome 3.

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

> Understanding glass and furnace properties and its impact on the environment.
> Evident in Exit Level Outcome 1.
> Controlling the melting process within safety and environmentally safe parameters.
> Evident in Exit Level Outcome 2.
> Limiting the impact of emergencies on people and the environment.
> Evident in Exit Level Outcome 3.

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

> Understanding the impact of molten glass properties on the furnace operations and the final product produced.
> Evident in Exit Level Outcome 1.
> Controlling material and furnace conditions in order to ensure that only quality products are produced.
> Evident in Exit Level Outcome 2.
> Being prepared to address emergencies effectively to minimise impact on people, equipment and ultimately company viability.
> Evident in Exit Level Outcome 3.

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

> Accumulation and grasp of scientific knowledge in the community.
> Evident in Exit Level Outcome 1.
>Efficient plant operation to maintain employment levels in local community.
> Evident in Exit Level Outcome 2.
> Effective handling of emergencies at home and in local community.
> Evident in Exit Level Outcome 3.

ASSOCIATED ASSESSMENT CRITERIA

Associated Assessment Criteria for Exit level outcome 1:

> The properties of the raw materials used in the glass production process are explained in terms of accepted scientific principles.
> Heat and heat transfer principles are explained in terms of relevance to glass melting and as applied in a glass melting furnace.
> Molten glass properties are explained in terms of their relevance to a glass melting furnace.

Associated Assessment Criteria for Exit level outcome 2:

> The glass furnace and its ancillary systems are monitored and controlled as per standard operating procedure requirements.
> Quality standards of materials entering and leaving the glass furnace is monitored and controlled in accordance with specifications.
> Problems experienced with the glass furnace and its ancillary systems or the quality of process materials are solved using a basic problem solving methodology.

Associated Assessment Criteria for Exit level outcome 3:

> Emergency conditions are assessed and communicated as per standard operating procedure requirements.

> Equipment failure and serious injury to personnel are addressed in such a way as to minimise further impact on human life, equipment and the environment.
> Plant and equipment is shut down or returned to normal running conditions in accordance with standard operating procedures.

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, organize 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
The qualification was compared against qualifications originating from the NVQ in Britain, SVQ in Scotland, the German Berufsschule and the Australian and New Zealand Qualifications Frameworks. African countries with manufacturing facilities (including SADC countries) were scanned for applicable qualifications or training programmes, but no relevant qualifications are offered in any of these countries.

A comparison with the British qualifications is particularly valuable since they also lead a European Community (EC) pilot project to establish a benchmark glass manufacturing qualification for the EC. It is therefore important to note that the current British qualifications have the following similarities to the South African qualification:

> Both have separate qualifications to address glass melting and glass forming.
> Both have a core molten glass chemistry module.
> Both have a core glass furnace operations module.

The differences are as follows:

> The proposed South African molten glass qualification includes emergency procedures and problem solving unit standards in its core, the NVQ has no further core standards.
> A variety of additional Unit Standards addressing molten glass manufacturing aspects are included in the elective component of the South African qualification.
> The British qualification prefers a variety of mechanical, business and soft skill unit standards in its elective portfolio. These were considered of secondary importance by South African stakeholders.

The other participants in the EC project, Sweden, the Czech Republic and Romania, have been amongst the world leaders in glass manufacturing for many years. Although the Czech Republic and Romania are in the process of adopting and converting the British formal qualifications to their own requirements, "glass institutes" which form part of their higher education system train

"glass technicians" (diploma and degree courses) whereas "glass artisans" are trained as a fitter and turner speciality course aimed at the building and maintenance of glass furnace ware.

The German Berufsschule offers a two year course (certificate) consisting of an in-depth theory component and a detailed mechanical (dismantle, assemble and set-up) component. This is similar to the "glass artisan" route followed by Romania and the Czech Republic. Most of these Berufsschüle also offers courses in glass sculpture which favours the more artistic approach to glass than the approach relevant to the South African industry.

Finally, worldwide training is provided by glass furnace suppliers to companies using their technology and equipment. Although these courses cover a range of operational aspects, they lack the depth and integrated approach required for a qualification in this field.

In Summary:

Good international comparability, including similar core qualification structures and progressions from NQF Level 2 to NQF Level 3, were found with the Australian, New Zealand, British, Scottish and German qualifications. However, the international qualifications have a variety of mechanical, business and soft skill electives supporting their core, whereas Unit Standards with an in-depth focus on glass manufacturing were seen as a higher priority in the proposed South African molten glass qualification.

The Molten Glass Qualification compares well with the best international qualifications and training programmes offered. The additional operational content incorporated in the qualification will serve to support qualifying learners to make better informed, autonomous decisions within a more compact time frame than international learners.

ARTICULATION OPTIONS

This qualification does not form part of a qualification suite but will allow the learner a vertical progression from the National Certificate: Chemical Manufacturing, ID 58955 at NQF Level 2, preferably obtained in a glass batch mixing environment. The qualifying learner may progress to a NQF Level 4 supervisory role in the glass manufacturing field.

There are no direct horizontal articulation possibilities due to the focussed technical nature of the training in this field; however a number of the Unit Standards are duplicated in a range of other manufacturing and processing qualifications making access easier.

MODERATION OPTIONS

> Anyone moderating the assessment of learners against this Qualification must be registered as a moderator with the relevant ETQA.

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

> Assessment and moderation 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 must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

> Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

CRITERIA FOR THE REGISTRATION OF ASSESSORS
In order to assess this qualification, the assessor needs:

> Well developed interpersonal skills.
> 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 the production of molten glass. 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 48434, "National Certificate: Molten Glass Production", Level 3, 120 credits.

Range Statements:

This qualification addresses the theoretical knowledge required by learners in glass melting operations.

Knowledge relating to glass melting includes process specific technology, communication, mathematics, applied science, and SHEQ.

This qualification may be applicable to other manufacturing operations, while concepts are applicable to a range of metallurgical melting 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	258075	Demonstrate understanding of the scientific principles applicable to glass melting	Level 3	4
Core	258076	Monitor and control the production of molten glass	Level 3	12
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	244084	Use operating instructions to control process plant conditions	Level 3	10
Elective	244076	Apply elementary statistical process control principles	Level 2	6
Elective	114981	Capture numerical and text information on an electronic database	Level 2	2
Elective	116518	Conduct safety and health representation activities	Level 2	3
Elective	244078	Demonstrate understanding of a work permit system	Level 2	3

	ID	UNIT STANDARD TITLE	LEVEL	CREDITS
Elective	116937	Use a Graphical User Interface (GUI)-based spreadsheet application to create and edit spreadsheets	Level 2	4
Elective	244108	Apply safety, health and environment protection procedures in a process plant	Level 3	6
Elective	13974	Demonstrate an understanding of the refractory materials, products and processes	Level 3	5
Elective	258077	Demonstrate understanding of electrostatic precipitator technology	Level 3	6
Elective	244095	Dismantle, assemble and install basic components in a process environment	Level 3	6
Elective	244091	Identify and interpret instrument control loops	Level 3	8
Elective	120239	Monitor critical control points (CCPs) as an integral part of a hazard analysis critical control point (HACCP) system	Level 3	6
Elective	244094	Perform and support maintenance functions	Level 3	5
Elective	258078	Perform visual inspection checks to identify glass defects	Level 3	4
Elective	119078	Use a GUI-based word processor to enhance a document through the use of tables and columns	Level 3	5
Elective	10981	Supervise work unit to achieve work unit objectives (individuals and teams)	Level 4	12

LEARNING PROGRAMMES RECORDED AGAINST THIS QUALIFICATION
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Demonstrate understanding of the scientific principles applicable to glass melting

SAQA US ID	*UNIT STANDARD TITLE*		
258075	Demonstrate understanding of the scientific principles applicable to glass melting		
ORIGINATOR		*PROVIDER*	
Chemical Industries SGB			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	4

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Explain the properties of the raw material used in the glass production process.

SPECIFIC OUTCOME 2
Describe heat and its application in glass melting.

SPECIFIC OUTCOME 3
Describe glass furnace heat transfer principles.

SPECIFIC OUTCOME 4
Demonstrate understanding of molten glass properties.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	63349	National Certificate: Molten Glass Production	Level 3

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Monitor and control the production of molten glass

SAQA US ID	*UNIT STANDARD TITLE*		
258076	Monitor and control the production of molten glass		
ORIGINATOR		*PROVIDER*	
Chemical Industries SGB			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	12

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Explain the fundamental principles applicable to the glass melting process.

SPECIFIC OUTCOME 2
Monitor and control the different ancillary systems interacting with the glass melting process.

SPECIFIC OUTCOME 3
Monitor and control the quality standards of raw materials and the final molten glass product in the glass melting process.

SPECIFIC OUTCOME 4
Monitor and control the glass melting process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	63349	National Certificate: Molten Glass Production	Level 3

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Demonstrate understanding of electrostatic precipitator technology

SAQA US ID	*UNIT STANDARD TITLE*		
258077	Demonstrate understanding of electrostatic precipitator technology		
ORIGINATOR		*PROVIDER*	
Chemical Industries SGB			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	6

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Explain the fundamental principles of the ESP process.

SPECIFIC OUTCOME 2
Explain the properties of the gases treated in the process.

SPECIFIC OUTCOME 3
Explain the properties of the products generated in this process.

SPECIFIC OUTCOME 4
Describe additional mechanical equipment, electrical equipment, instrumentation and utilities used in the production process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63349	National Certificate: Molten Glass Production	Level 3

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Perform visual inspection checks to identify glass defects

SAQA US ID	*UNIT STANDARD TITLE*		
258078	Perform visual inspection checks to identify glass defects		
ORIGINATOR		*PROVIDER*	
Chemical Industries SGB			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Engineering and Related Design	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	4

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Explain the fundamental principles applicable to visual checks.

SPECIFIC OUTCOME 2
Identify and discuss common glass defects.

SPECIFIC OUTCOME 3
Identify and discuss the cause of different glass defects.

SPECIFIC OUTCOME 4
Perform tests and record and report data related to inspections.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63349	National Certificate: Molten Glass Production	Level 3