
GOVERNMENT NOTICES

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

No. 717

11 July 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

Mining and Minerals

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 11 August 2007**. All correspondence should be marked **Standards Setting – Mining and Minerals** 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: Mineral Processing

SAQA QUAL ID	QUALIFICATION TITLE		
62769	National Certificate: Mineral Processing		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
QUALIFICATION TYPE	FIELD	SUBFIELD	
National Certificate	6 - Manufacturing, Engineering and Technology	Fabrication and Extraction	
ABET BAND	MINIMUM CREDITS	NQF LEVEL	QUAL CLASS
Undefined	130	Level 3	Regular-Unit Stds Based

This qualification replaces:

Qual ID	Qualification Title	NQF Level	Min Credits	Replacement Status
49044	National Certificate: Mineral Processing, Gold Extraction	Level 3	124	Will occur as soon as 62769 is registered
49046	National Certificate: Lump Ore Beneficiation	Level 3	120	Will occur as soon as 62769 is registered

PURPOSE AND RATIONALE OF THE QUALIFICATION

Purpose:

Mineral processing plants are mostly located near rural areas. Many previously disadvantaged individuals from the rural areas are employed to work in these plants. This qualification will help improve their employability, e.g. in smaller mineral processing plants that cannot afford to do their own training as well as benefit the learner through the fundamental knowledge and life skills included in the qualification.

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

Learners credited with this qualification are able to:

- > Communicate and solve problems in the workplace.
- > Demonstrate an understanding of Occupational Health, Safety and Environmental standards with regard to hazards and risks in the workplace.
- > Conduct materials handling and transport activities within the mineral processing context.
- > Control process control activities within set parameters.
- > Perform minor maintenance on process equipment.
- > Separate materials using various techniques.

Rationale:

"Mineral processing" refers to the extraction of valuable minerals contained in mined ore and the production of related products, or an enriched concentrate, for further processing or sale.

Recovery rates and cost implications relating to minerals extraction processes must be optimised to ensure the ongoing viability of the producer.
This qualification will equip operating personnel with these competencies.

End products are metals or metal compounds that can be used in a wide variety of applications, for example:

- > Gold, jewellery, currency, electronic components, dentistry.
- > Uranium, fuel for nuclear power stations, nuclear powered ships and submarines, isotopes for instrumentation.
- > Base metals, copper and aluminium for conductors, zinc for anti-corrosion coatings, cobalt for paint, lead for battery poles.
- > Platinum group metals for jewellery and catalysts.
- > Mineral sand products (titanium etc.) for steel hardening, paint pigments and special alloys.
- > Lump Ore Beneficiation, done to increase grade of the ore in order to minimize the cost of subsequent transport and further processing.

This qualification will benefit society and the economy by earning foreign currency and producing the necessary products mentioned above for use in the industry.

Learners entering this qualification will be qualified workstation attendants (operators) on a particular section within a Mineral Processing Plant. By obtaining this qualification such a learner will be able to operate diverse plant equipment throughout the plant without close supervision.

This is the second qualification in the learning pathway for Mineral Processing. Learners would proceed from this qualification to the National Certificate, NQF Level 4: Mineral Processing (Gold, Platinum Metals, Uranium, Mineral Sands, Base Metals Extraction and Lump Ore Beneficiation) which encompasses Supervisory, Management and Leadership competencies.

RECOGNIZE PREVIOUS LEARNING?

Y

LEARNING ASSUMED IN PLACE

It is assumed that the learners are already competent in:

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

Recognition of Prior Learning:

This qualification can be achieved wholly or in part through recognition of prior learning in terms of the set criteria.

Evidence of prior learning must be assessed through formal RPL processes through recognized methods.

Evidence can be presented in a variety of forms, including international or previous local qualifications, reports, testimonials mentioning functions performed, work records, portfolios, videos of practice and performance records.

Any other evidence of prior learning should be assessed through formal RPL processes to recognize achievement thereof.

Access to the Qualification:

Access to the qualification is open, however it is preferable that learners have completed the National Certificate: Minerals Processing, NQF Level 2.

QUALIFICATION RULES

A minimum of 130 credits is required to complete the full qualification.

All Fundamental unit standards totaling 36 credits are compulsory.

All Core unit standards totaling 36 credits are compulsory.

The Elective unit standards totalling 58 credits must be achieved in one of the following specialization areas.

There are six specialization areas possible:

- > A: National Certificate in Mineral Processing-Gold.
- > B: National Certificate in Mineral Processing-Platinum.
- > C: National Certificate in Mineral Processing-Uranium.
- > D: National Certificate in Mineral Processing-Base Metals.
- > E: National Certificate in Mineral Processing-Mineral Sands.
- > F: National Certificate in Mineral Processing-Lump Ore Beneficiation.

Specialization Area A: Gold:

The following unit standards totaling 38 credits are compulsory:

Title; Level; Credits:

- > Grind material in a metallurgical plant; NQF Level 3; 11 Credits.
- > Adsorb a dissolved metal into an adsorbing agent; NQF Level 3; 5 Credits.
- > Elute a metal from an adsorbing agent; NQF Level 3; 6 Credits.
- > Regenerate carbon by means of a rotary kiln; NQF Level 3; 4 Credits.
- > Make up a cyanide solution in a metallurgical plant; NQF Level 3; 6 Credits.
- > Handle acids safely in a metallurgical plant; NQF Level 2; 6 Credits.

A further 20 credits are to be chosen from the rest of the electives to make up a minimum of 130 credits for the full qualification.

Specialization Area B: Platinum:

The following unit standards totaling 30 credits are compulsory:

Title; Level; Credits:

- > Grind material in a metallurgical plant; NQF Level 3; 11 Credits.
- > Recover a mineral from ore by means of froth flotation; NQF Level 3; 10 Credits.
- > Crush material in a metallurgical plant; NQF Level 3; 9 Credits.

A further 28 credits are to be chosen from the rest of the electives to make up a minimum of 130 credits for the full qualification.

Specialization Area C: Uranium:

The following unit standards totaling 31 credits are compulsory:

Title; Level; Credits:

- > Adsorb a dissolved metal into an adsorbing agent; NQF Level 3; 5 Credits.
- > Elute a metal from an adsorbing agent; NQF Level 3; 6 Credits.
- > Extract metal from solution by means of solvent extraction; NQF Level 3; 5 Credits.
- > Regenerate organic solvent; NQF Level 3; 5 Credits.
- > Produce de-mineralized water by means of a DEMIN plant; NQF Level 3; 10 Credits.

A further 27 credits are to be chosen from the rest of the electives to make up a minimum of 130 credits for the full qualification.

Specialization Area D: Base metals:

The following unit standards totaling 34 credits are compulsory:

Title; Level; Credits:

- > Separate material by means of a magnetic separator; NQF Level 3; 3 Credits.
- > Recover a mineral from ore by means of froth flotation; NQF Level 3; 10 Credits.
- > Grind material in a metallurgical plant; NQF Level 3; 11 Credits.
- > Control an ore storage and transport system; NQF Level 3; 10 Credits.

A further 24 credits are to be chosen from the rest of the electives to make up a minimum of 130 credits for the full qualification.

Specialization Area E: Mineral Sands:

The following unit standards totaling 31 credits are compulsory:

Title; Level; Credits:

- > Mine fine granular material by means of hydraulic monitoring; NQF Level 3; 7 Credits.
- > Separate material by means of a magnetic separator; NQF Level 3; 3 Credits.
- > Separate material by means of a wet high intensity magnetic separator; NQF Level 3; 5 Credits.
- > Separate material by means of an electrostatic separator; NQF Level 3; 3 Credits.
- > Separate material by means of a dry high intensity magnetic separator; NQF Level 3; 3 Credits.
- > Control an ore storage and transport system; NQF Level 3; 10 Credits.

A further 27 credits are to be chosen from the rest of the electives to make up a minimum of 130 credits for the full qualification.

Specialization Area F: Lump Ore:

The following unit standards totaling 31 credits are compulsory:

Title; Level; Credits:

- > Crush material in a metallurgical plant; NQF Level 3; 9 Credits.
- > Stack material onto a blending stockpile by means of a stacker; NQF Level 3; 3 Credits.
- > Separate material by means of a magnetic separator; NQF Level 3; 3 Credits.
- > Control medium density in a dense medium separation process; NQF Level 3; 6 Credits.
- > Control an ore storage and transport system; NQF Level 3; 10 Credits.

A further 27 credits are to be chosen from the rest of the electives to make up a minimum of 130 credits for the full qualification.

EXIT LEVEL OUTCOMES

1. Communicate and solve problems in the workplace.

Range:

- > Workplace refers to the Minerals Processing environment.
- > Minerals processing refers to the processing of:
 - > Gold, Uranium, Base metals, Platinum, Minerals Sands, Lump Ore.

2. Demonstrate an understanding of Occupational Health, Safety and Environmental standards with regard to hazards and risks in the workplace.

3. Conduct materials handling and transport activities within the mineral processing context.

4. Control process control activities within set parameters.

5. Perform minor maintenance on process equipment.

Range: Minor maintenance refers to maintenance performed by operations personnel not qualified as artisans.

6. Separate materials using various techniques.

Range: Separation techniques include but not limited to filtration, gravity concentration, screening and/or cycloning.

Critical Cross-Field Outcomes:

The following Critical Cross-Field Outcomes have been addressed by the Exit Level Outcomes as follows:

While performing integrated chemical process operations, qualifying learners are able to:

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

- > Monitoring plant, equipment and processes in a minerals processing environment in terms of physical condition and operation.
- > Monitoring plant, equipment and processes in a minerals processing environment in terms of compliance with operational procedures and quality assurance requirements.
- > Responding to non-conformances in a minerals processing environment.
- > Responding to emergencies in a minerals processing environment (plant, buildings, process).
- > Applying preventative or remedial action in accordance with operating procedures.

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

- > Contributing to team goals and achievements by adhering to agreed working methods and processes.
- > Contributing to team efficiency by supporting other team members in the minerals processing environment.
- > Adhering to team protocols, codes of conduct and generally promoting a positive team spirit.
- > Co-ordinating one's work with that of others in the direct surrounding area, internal and external operations.

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

- > Conducting shift take-over and hand-over activities effectively in order to ensure typical continuous operations in a minerals processing plant.
- > Applying operating instructions to control and respond to process plant conditions.
- > Taking preventive and remedial action to solve operating problems in a process plant.
- > Maintaining product quality by adhering to quality assurance requirement in a minerals processing environment.

Collect, analyze, organize and critically evaluate information by:

- > Monitoring operational parameters in a minerals processing environment.
- > Collating and sorting quality assurance data.
- > Monitoring and interpreting quality assurance data against the requirements.
- > Managing records, reports and stock.

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

- > Interpreting, recording and reporting of minerals processing plant data obtained from visual inspections, instrument readings and process control feedback.
- > Completing reports, log sheets, shift handover activities and other process control activities effectively, ensuring that all other team members are aware of critical information.
- > Preparing and submitting reports, non-conformance reports and other required documentation.
- > Working with modern communications technology such as computer messaging, cellular phones and radio systems in a process control environment.

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

- > Working according to health and safety regulations.
- > Using relevant terminology and adhering to standard protocols such as SI, ISO and other standards applicable in the minerals processing environment.
- > Controlling technologically advanced production equipment according to operating procedures.
- > Working and interpreting technologically advanced instrumentation and computer systems.

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

- > Understanding the impact of upstream, downstream and parallel minerals processing systems upon each other and his own role in each context.
- > Requesting assistance from other team members and support personnel.
- > Assisting other team members and working together with support personnel to investigate and resolve problem areas.
- > Adjusting equipment and machinery while taking cognizance of the impact on other processes.

ASSOCIATED ASSESSMENT CRITERIA

Associated Assessment Criteria for Exit-Level-Outcome 1:

- > Oral communication is maintained and adapted as required to promote effective interaction in a mineral processing context.
- > Written communication skills are used effectively in the workplace.
- > Basic computer skills are used effectively for process control and spreadsheets.

- > Mathematical principles and techniques are applied while performing the tasks related to mineral processing.
- > Mathematical calculations are utilized for the solution of routine process problems.

Associated Assessment Criteria for Exit-Level-Outcome 2:

- > Occupational Health and Safety and environmental principles and practices are understood and applied in accordance with workplace requirements.
- > The impact of risks and hazards are explained and applied within mineral processes in order to minimize/eliminate risks/hazards.
- > Preventative and corrective measures are explained and applied within mineral processing activities.
- > Hazardous conditions are monitored and reported on a continual basis to ensure the safety and health of persons.

Associated Assessment Criteria for Exit-Level-Outcome 3:

- > Elementary principles, operating factors and factors affecting the operating performance in materials handling and transport operations are explained within the mineral processing context.
- > Materials handling and transfer activities are performed effectively in accordance with specified requirements.
- > Materials handling and transport activities are recorded and reported on as per accepted procedures.

Range: Accepted procedures include: Safe work procedures, legal, environmental and manufacturer's requirements.

Associated Assessment Criteria for Exit-Level-Outcome 4:

- > Principles and factors affecting the process control activities are explained within the minerals processing context.
- > Process controlling activities are conducted according to specified requirements.
- > Operating parameters are adhered to and the impact of non-adherence is explained in accordance with specified requirements.
- > Standard Operating Procedures are applied according to given procedures.
- > Process plant and equipment are monitored to detect any operational deviations according to operating schedules, procedures and prevailing operational requirements.
- > Production results and deviations are reported and logged on a continual basis to meet the data recording requirements.
- > Time and the work process are managed within the business unit.

Associated Assessment Criteria for Exit-Level-Outcome 5:

- > The purpose and importance of proper maintenance of the equipment is explained and applied in accordance with specified requirements.
- > Minor maintenance is conducted on metallurgical process equipment.
- > Instruments on process control equipment are read and adjusted to maintain continued smooth and efficient operation.

Associated Assessment Criteria for Exit-Level-Outcome 6:

- > Separation techniques are explained and applied within the mineral processing context.
- > Separation methods prescribed are applied within the mineral processing context.
- > Separation processes are monitored and controlled within standard operating parameters.

Integrated Assessment:

Integrated assessment at the level of the qualification provides an opportunity for learners to show they are able to integrate concepts, actions and ideas achieved across a range of unit standards and contexts.

Integrated assessment must evaluate the quality of observable performance as well as the thinking behind the performance, and must be based on a summative assessment guide. The guide will spell out how the assessor will assess different aspects of the performance and will include:

- > Observing the learner at work (both in the primary activity as well as other interactions).
- > Asking questions and initiating short discussions to test understanding.
- > Looking at records and reports in the portfolio and reviewing previous assessments.

In some cases interference will be necessary to determine competence depending on the nature and context within which performance takes place.

It is necessary to ensure that the fundamental part of the qualification is also targeted to ensure that while the competence may have been achieved in a particular context, learners are able to apply it in a range of other contexts and for future learning. The assessment should also ensure that all the critical cross-field outcomes have been achieved.

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

While this is primarily a workplace-based qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the exit-level outcomes. The assessment process should cover both the explicit tasks required for the qualification as well as the understanding of the concepts and principles that underpin the activities associated with minerals processing.

INTERNATIONAL COMPARABILITY

The proposed qualification was compared to qualifications and other learning interventions from other countries in terms of level, scope of qualifications and competencies covered in order to ascertain to what extent the qualifications and components (unit standards) are comparable.

A number of relevant websites sites were searched from countries such as:

- > Mali (a West African country with a metals/minerals history dating back to well before the 14th century).
- > Ghana (a West African country with a well developed education system and strong mining and minerals industry).
- > Tanzania (a developing country with a growing infrastructure).
- > Australia and New Zealand (Both of which have outcomes-based national qualifications systems similar to that of South Africa).
- > Canada (a global leader in the field of minerals extraction and processing).
- > India (developing into one of the strongest economies in the world and having made massive investments in South Africa).

In some cases (e.g. Mali and Tanzania) no references to Minerals Processing (or Metallurgical) training and/or qualifications could be found.

Ghana:

Although Ghana has access to International Vocational Qualifications through the British Council and City and Guilds Qualifications, a qualification related to metallurgy was not found. However, Ghana has 4 universities and offer related education and training at a higher level.

Australia: National Training Information Services:

The following programme was found:

- > Certificates II and III in Metalliferous Mining Operations (Processing).
- > Numerous competencies from this qualification/programme are within the proposed South African Mining and Minerals SGB qualification.

The contents of the Certificate III are listed in the table below:

- > General processing; MNMPGP303A Conduct drying activities.
- > MNMPGP309A Perform process control room operations; MNMPGP310A Monitor and operate auxiliary plant and equipment.
- > UTPNEG162A Operate and monitor boiler steam/water cycle; SUGPOTB2A Operate a turbine.
- > PMAOPS330A Communicate and monitor pipeline activities; PMASUP340A Conduct pipeline pigging.
- > PMLOHS301B Work safely with instruments that emit ionising radiation; MNM05 Metalliferous Mining Training Package Qualification Framework.
- > 62 MNM05 Metalliferous Mining Training Package to be reviewed 31 January 2008, Version 1.1; PMLORG300A Follow established work plan.
- > PMLTEST302A Calibrate testing equipment and assist with its maintenance; Handling and pre-treatment.
- > MNMPHA302A Conduct crushing and screening; MNMPHA303A Conduct milling/grinding.
- > MNMPHA307A Operate and monitor filter processes; Beneficiation.
- > MNMPBE302A Conduct calcination activities; MNMPBE307A Conduct bacterial oxidation.
- > MNMPBE308A Conduct filtering process; MNMPBE309A Conduct floatation processes.
- > MNMPBE310A Conduct heavy media separation; MNMPBE311A Conduct high tension separation.
- > MNMPBE312A Conduct leaching process; MNMPBE313A Conduct magnetic separation.
- > MNMPBE314A Conduct pressure oxidation; MNMPBE315A Conduct thickening and clarifying process.
- > MNMPBE316A Conduct wet gravity separation; Refining.
- > MNMPRE301A Conduct electro-winning/electro-refining operations; MNMPRE302A Conduct elution processes.
- > MNMPRE303A Conduct gold room operations; MNMPRE310A Monitor casting quality.
- > PMAOPS307A Transfer bulk fluids into/out of storage facility; Smelting.
- > MNMPSM207A Tap furnaces; MNMPSM301A Cast a blast furnace.
- > MNMPSM302A Cast ingots; MNMPSM303A Operate a blast furnace.
- > MNMPSM304A Operate furnaces; MNMPSM305A Operate converters.
- > MNMPSM306A Supply molten metal and additives to furnaces; MNMPSM308A Control molten metal in holding furnace vessel.
- > MNMPSM313A Monitor and maintain furnace gas efficiency; MNMPSM314A Monitor and maintain flue gas efficiency.
- > UTPNEG154A Operate electrostatic precipitator dust collection plant.

New Zealand: The New Zealand Qualification Authority.

The following programme was found:

- > National Certificate: Extractive Industries (Mineral Processing, Alluvial Gold), Level 4, Credits 216.
- > This qualification contains components which compare well with the proposed South African Mining and Minerals SGB qualification.

> The NZ unit standards seem much broader than the South African ones, seeming to represent ELO's rather than individual unit standards.

Unit No.; Unit Standard Title; Level; Credit:

- > 8908; Inspect and maintain conveyors and screens; Level 3; 5 Credits.
- > 8911; Operate a static primary crushing plant; Level 2; 12 Credits.
- > 12628; Operate a metalliferous gold mill processing plant; Level 5; 120 Credits.
- > 12631; Strip and process gold; Level 4; 45 Credits.

The ASM International Organisation runs courses in the USA, Canada as well as the UK.

Found Course "Elements of Metallurgy". The following item is in the course outline:

- > Steps in processing common ores to metals.
- > Beneficiating and reducing methods.
- > Types of furnaces.
- > Refractories.

These items could very well form part of the training for the achievement of the proposed Mining and Minerals Sector qualification. However, they are not organised in the same manner as the proposed qualification.

Metallurgical Services International:

This organization runs Practical Metallurgical Solutions courses in various countries all over the world:

- > North and South America.
- > India.
- > China.
- > Europe.
- > Japan.
- > South Korea.

Certain syllabus items from the course outline above may be used in training learners in order for them to achieve the proposed Mining and Minerals Sector qualification.

Conclusions:

The closest fit to the proposed NC: Minerals Processing NQF Level 3 is the Australian qualification (Certificate III in Extractive Industries).

However a general conclusion was that the competencies addressed by the proposed qualification were in line with courses and qualifications from other parts of the world apart from Australia.

Holders of the NC: Minerals Processing NQF Level 3 will thus have a meaningful qualification in comparison to learners from other countries.

ARTICULATION OPTIONS

This qualification allows for both vertical and horizontal articulation.

Vertical articulation exists with:

- > ID 49042: Further Education and Training Certificate in Mineral Processing (Mineral Sands Extraction), NQF Level 4.
- > ID 49050: Further Education and Training Certificate: Mineral Processing (Platinum Extraction), NQF Level 4.
- > ID 40951: Further Education and Training Certificate: Mineral Processing (Gold Extraction), NQF Level 4.

Horizontal articulation can occur between the various mineral processing specialisation areas, and on a unit standard level within the different NQF Level 3 qualifications, such as:

- > ID 58537: National Certificate: Chemical Operations NQF Level 3.
- > National Certificate: Metals Refining NQF Level 3.

MODERATION OPTIONS

- > Anyone assessing a learner or moderating the assessment of a learner against the qualification must be registered as an assessor with the relevant Education, Training, Quality, Assurance (ETQA) Body, or with an ETQA that has a Memorandum of Understanding with the relevant ETQA.
- > Any institution offering learning that will enable the achievement of this qualification must be accredited as a provider with the relevant Education, Training, Quality, Assurance (ETQA) Body, or with an ETQA that has a Memorandum of Understanding with the relevant ETQA.
- > Assessment and moderation of assessment will be overseen by the relevant Education, Training, Quality, Assurance (ETQA) Body, or by an ETQA that has a Memorandum of Understanding with the relevant ETQA, according to the ETQA's policies and guidelines for assessment and moderation.
- > Moderation must include both internal and external moderation of assessments, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described in the associated unit standards.
- > 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

- > Have a similar qualification at above the level of the qualification.
- > Have at least a minimum of 1 year on the job relevant and preferably relevant workplace practical experience.
- > Registered as an assessor with the relevant ETQA.

NOTES

This qualification replaces the following qualifications:

- > ID 49046: National Certificate: Lump Ore Beneficiation, Level 3, 120 credits.
- > ID 49044: National Certificate: Mineral Processing, Gold Extraction, Level 3, 124 Credits.

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

Source: National Learners' Records Database

Qualification 62769

18/06/2008

Page 11

	ID	UNIT STANDARD TITLE	LEVEL	CREDITS
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	115101	Address workplace hazards and risks	Level 2	4
Core	14342	Manage time and work processes within a business environment	Level 2	4
Core	115091	Monitor compliance to safety, health and environmental requirements in a workplace	Level 2	2
Core	116534	Carry out basic first aid treatment in the workplace	Level 3	2
Core	115093	Control workplace hazardous substances	Level 3	4
Core	120331	Demonstrate knowledge pertaining to fires in working places	Level 3	3
Core	256657	Perform minor process maintenance on metallurgical process equipment	Level 3	10
Core	256656	Prepare for maintenance in a metallurgical plant	Level 3	5
Core	120329	Respond to, implement and manage emergencies according to an emergency action plan in a workplace	Level 3	2
Elective	256705	Calcine metal bearing concentrate	Level 2	2
Elective	256681	Clarify a solution	Level 2	6
Elective	256725	Condition material for further processing	Level 2	3
Elective	256666	Dewater solids in a metallurgical plant	Level 2	7
Elective	256695	Dispatch platinum group metals	Level 2	4
Elective	256660	Generate hot gas	Level 2	4
Elective	252335	Handle acids safely in a metallurgical plant	Level 2	6
Elective	256655	Handle hydrogen peroxide safely in a metallurgical plant	Level 2	4
Elective	256736	Make up sulphurous acid in a metallurgical plant	Level 2	4
Elective	256723	Make-up a Hydrochloric acid solution in a metallurgical plant	Level 2	4
Elective	256703	Manufacture starter sheets for an electro-winning process	Level 2	3
Elective	256756	Mix material for pelletizing	Level 2	8
Elective	256776	Move equipment by means of an electric winch	Level 2	2
Elective	256677	Neutralize plant tailings for final disposal	Level 2	3
Elective	256777	Neutralize waste acid in a metallurgical plant	Level 2	3
Elective	256665	Press liquids from solids in a metallurgical plant	Level 2	7
Elective	256755	Pull electrodes in an electro-winning process	Level 2	4
Elective	256701	Recover luminescent material by means of an x-ray sorter	Level 2	2
Elective	256668	Recover organic solvent from an aqueous metal compound solution, by means of a distillation process	Level 2	3
Elective	256675	Recover precious metals from combustible waste by means of an incinerator	Level 2	6
Elective	256694	Remove impurities from PGM bearing liquor by means of a hydrolysis process	Level 2	4
Elective	256678	Remove redundant combination liner from an arc furnace	Level 2	3
Elective	256726	Remove solid impurities from a liquid by means of a Funda filter	Level 2	6
Elective	256679	Replace filter bags of a cyanide storage silo	Level 2	6
Elective	256658	Straighten cathodes by means of a hydraulic press	Level 2	4
Elective	256706	Transfer material by means of a metal-type conveyor	Level 2	4
Elective	256667	Transfer material by means of pneumatic conveying system	Level 2	4
Elective	256676	Adsorb a dissolved metal onto an adsorbing agent	Level 3	5
Elective	256700	Adsorb a dissolved precious metal onto resin	Level 3	7
Elective	256688	Construct a tailings dam catwalk	Level 3	7
Elective	256818	Control Proportioning of raw material	Level 3	11
Elective	256704	Control an ore storage and transport system	Level 3	10
Elective	256722	Control medium density in a dense medium separation process	Level 3	6
Elective	256817	Control slipping and baking of electrodes in an electric arc furnace	Level 3	14
Elective	256672	Convert the platinum group metal salt to a sponge form	Level 3	5
Elective	253339	Crush material in a metallurgical plant	Level 3	9

	ID	UNIT STANDARD TITLE	LEVEL	CREDITS
Elective	256719	De-aerate a solution by means of a Crowe tower	Level 3	12
Elective	256691	Deposit tailings onto a paddock-type dam	Level 3	7
Elective	256689	Dissolve precious metals in a chemical	Level 3	5
Elective	256795	Dry and preheat green pellets	Level 3	10
Elective	256671	Dry material by means of a thermal process	Level 3	7
Elective	256670	Elute a metal from an adsorbing agent	Level 3	6
Elective	256687	Extract a metal from a solution by means of solvent extraction	Level 3	5
Elective	256724	Extract a specific platinum group metal from a solution by means of a chemical process	Level 3	10
Elective	256659	Generate airflow	Level 3	6
Elective	256662	Grind material in a metallurgical plant	Level 3	11
Elective	256683	Increase hydrochloric acid concentration by means of chlorine gas absorption	Level 3	8
Elective	256685	Increase redox potential of hydrochloric acid by means of chlorine gas absorption	Level 3	8
Elective	256815	Install electrode casings of an arc furnace	Level 3	12
Elective	256721	Leach gold from a gravity concentrate by means of an inline leach reactor	Level 3	7
Elective	256717	Leach gold-bearing material by means of chlorine	Level 3	9
Elective	256664	Leach metal bearing material in a metallurgical plant	Level 3	6
Elective	256686	Load material into railway trucks by means of an automated loading station	Level 3	9
Elective	256697	Maintain grinding medium load in a rod mill	Level 3	4
Elective	256696	Maintain routine tailings dam performance records	Level 3	4
Elective	256716	Make-up a cyanide solution in a metallurgical plant	Level 3	6
Elective	256699	Mine fine granular material by means of hydraulic monitoring	Level 3	7
Elective	256663	Neutralize cyanide spillage	Level 3	5
Elective	256727	Oxidise concentrates by means of the Biox® process	Level 3	14
Elective	256693	Produce bullion by means of a furnace	Level 3	5
Elective	256739	Produce copper bar by means of a continuous casting process	Level 3	5
Elective	256735	Produce demineralised water by means of a DEMIN plant	Level 3	10
Elective	256775	Produce pellets by means of a pelletizer	Level 3	10
Elective	256690	Produce platinum ingots by means of a furnace	Level 3	5
Elective	256741	Pulverise Material by means of a Vertical Ball Type Pulveriser	Level 3	10
Elective	256718	Recover a metal from a solution by means of electrolytic precipitation	Level 3	4
Elective	256661	Recover a mineral from ore by means of froth flotation	Level 3	10
Elective	256702	Recover diamonds by means of a grease belt	Level 3	4
Elective	256674	Recover uranium from solution by means of chemical precipitation	Level 3	7
Elective	256737	Reduce metal bearing material in a pressure vessel	Level 3	6
Elective	256682	Regenerate carbon by means of a rotary kiln	Level 3	4
Elective	256669	Reline a mill	Level 3	12
Elective	256720	Reline a mill by means of a hydraulic relining machine	Level 3	8
Elective	256698	Remove impurities from molten metal by means of a converting process	Level 3	10
Elective	252301	Separate material by means of a dry high intensity magnetic separator	Level 3	3
Elective	256715	Separate material by means of a magnetic separator	Level 3	3
Elective	256684	Separate material by means of a wet high intensity magnetic separator (WHIMS)	Level 3	5
Elective	252307	Separate material by means of an electrostatic separator	Level 3	3
Elective	256680	Separate precious metals by means of an hydrolysis process	Level 3	5
Elective	256816	Shut down a furnace for maintenance	Level 3	10
Elective	256673	Stack material onto a blending stockpile by means of a stacker	Level 3	3
Elective	256738	Tap molten material from an ASARCO furnace	Level 3	6
Elective	256740	Transfer a gas by means of a gas transfer pump	Level 3	6

LEARNING PROGRAMMES RECORDED AGAINST THIS QUALIFICATION

None



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Handle hydrogen peroxide safely in a metallurgical plant***

SAQA US ID	UNIT STANDARD TITLE		
256655	Handle hydrogen peroxide safely in a metallurgical plant		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	4

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the handling of hydrogen peroxide.

SPECIFIC OUTCOME 2

Prepare to handle hydrogen peroxide.

SPECIFIC OUTCOME 3

Handle hydrogen peroxide.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the hydrogen peroxide handling process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:*Prepare for maintenance in a metallurgical plant*

SAQA US ID		UNIT STANDARD TITLE	
256656		Prepare for maintenance in a metallurgical plant	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	5

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to preparing for maintenance.

SPECIFIC OUTCOME 2

Determine maintenance requirements.

SPECIFIC OUTCOME 3

Prepare for maintenance.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Perform minor process maintenance on metallurgical process equipment***

SAQA US ID	UNIT STANDARD TITLE		
256657	Perform minor process maintenance on metallurgical process equipment		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
252338	Perform minor mechanical maintenance on metallurgical process equipment	Level 2	6	Will occur as soon as 256657 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to process equipment maintenance.

SPECIFIC OUTCOME 2

Prepare to maintain process equipment.

SPECIFIC OUTCOME 3

Maintain process equipment.

SPECIFIC OUTCOME 4

Complete the duties pertaining to process equipment maintenance.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Straighten cathodes by means of a hydraulic press***

SAQA US ID	UNIT STANDARD TITLE		
256658	Straighten cathodes by means of a hydraulic press		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	4

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the straightening of cathodes.

SPECIFIC OUTCOME 2

Prepare to straighten cathodes.

SPECIFIC OUTCOME 3

Straighten cathodes.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the straightening of cathodes.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:**Generate airflow**

SAQA US ID	UNIT STANDARD TITLE		
256659	Generate airflow		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
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

Demonstrate knowledge relating to the generation of airflow.

SPECIFIC OUTCOME 2

Prepare to generate airflow.

SPECIFIC OUTCOME 3

Generate airflow.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the generation of airflow.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:**Generate hot gas**

SAQA US ID		UNIT STANDARD TITLE	
256660		Generate hot gas	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	4

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the generation of hot gas.

SPECIFIC OUTCOME 2

Prepare to generate hot gas.

SPECIFIC OUTCOME 3

Generate hot gas.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the hot gas generation process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Recover a mineral from ore by means of froth flotation***

SAQA US ID		UNIT STANDARD TITLE	
256661		Recover a mineral from ore by means of froth flotation	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the recovery of a mineral by means of froth flotation.

SPECIFIC OUTCOME 2

Prepare to recover a mineral.

SPECIFIC OUTCOME 3

Recover a mineral.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the flotation process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Grind material in a metallurgical plant

SAQA US ID		UNIT STANDARD TITLE	
256662		Grind material in a metallurgical plant	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	11

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the grinding of material.

SPECIFIC OUTCOME 2

Prepare to grind material.

SPECIFIC OUTCOME 3

Grind material.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the grinding process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Neutralize cyanide spillage***

SAQA US ID	UNIT STANDARD TITLE		
256663	Neutralize cyanide spillage		
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	5

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the neutralizing of cyanide.

SPECIFIC OUTCOME 2

Prepare to neutralize cyanide spillage.

SPECIFIC OUTCOME 3

Neutralize cyanide spillage.

SPECIFIC OUTCOME 4

Complete the duties pertaining to cyanide neutralizing.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Leach metal bearing material in a metallurgical plant

SAQA US ID		UNIT STANDARD TITLE	
256664		Leach metal bearing material in a metallurgical plant	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
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

Demonstrate knowledge relating to leaching metal-bearing material.

SPECIFIC OUTCOME 2

Prepare to leach material.

SPECIFIC OUTCOME 3

Leach material.

SPECIFIC OUTCOME 4

Complete duties pertaining to the leaching process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Press liquids from solids in a metallurgical plant***

SAQA US ID		UNIT STANDARD TITLE	
256665		Press liquids from solids in a metallurgical plant	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	7

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the pressing of liquids from solids.

SPECIFIC OUTCOME 2

Prepare to press liquids from solids.

SPECIFIC OUTCOME 3

Press liquids from solids.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the pressing process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Dewater solids in a metallurgical plant***

SAQA US ID		UNIT STANDARD TITLE	
256666		Dewater solids in a metallurgical plant	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	7

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the dewatering of solids.

SPECIFIC OUTCOME 2

Prepare to dewater solids.

SPECIFIC OUTCOME 3

Dewater solids.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the dewatering process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Transfer material by means of pneumatic conveying system

SAQA US ID	UNIT STANDARD TITLE		
256667	Transfer material by means of pneumatic conveying system		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	4

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
110391	Transfer material by means of pneumatic conveying system	Level 2	4	Will occur as soon as 256667 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the transfer of material.

SPECIFIC OUTCOME 2

Prepare to transfer material.

SPECIFIC OUTCOME 3

Transfer material.

SPECIFIC OUTCOME 4

Complete duties pertaining to the material transfer process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Recover organic solvent from an aqueous metal compound solution, by means of a distillation process

SAQA US ID	UNIT STANDARD TITLE		
256668	Recover organic solvent from an aqueous metal compound solution, by means of a distillation process		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	3

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
110185	Recover organic solvent from an aqueous metal compound solution by means of a distillation process	Level 2	3	Will occur as soon as 256668 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the distillation of organic solvent.

SPECIFIC OUTCOME 2

Prepare to distil organic solvent.

SPECIFIC OUTCOME 3

Distil organic solvent.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the distillation of organic solvent.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Reline a mill

SAQA US ID		UNIT STANDARD TITLE	
256669		Reline a mill	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	12

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
9570	Reline a mill	Level 3	12	Will occur as soon as 256669 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to relining a mill.

SPECIFIC OUTCOME 2

Determine relining requirements.

SPECIFIC OUTCOME 3

Prepare to reline a mill.

SPECIFIC OUTCOME 4

Reline a mill.

SPECIFIC OUTCOME 5

Complete duties pertaining to the relining process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Elute a metal from an adsorbing agent***

SAQA US ID	UNIT STANDARD TITLE		
256670	Elute a metal from an adsorbing agent		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	6

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
10546	Elute a precious metal from loaded resin	Level 3	7	Will occur as soon as 256670 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to metal elution.

SPECIFIC OUTCOME 2

Prepare to elute a metal.

SPECIFIC OUTCOME 3

Elute a metal.

SPECIFIC OUTCOME 4

Complete duties pertaining to the elution process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:*Dry material by means of a thermal process*

SAQA US ID	UNIT STANDARD TITLE		
256671	Dry material by means of a thermal process		
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	7

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
15305	Dry material by means of a thermal process	Level 3	7	Will occur as soon as 256671 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the drying of material by means of a thermal process.

SPECIFIC OUTCOME 2

Prepare to dry material.

SPECIFIC OUTCOME 3

Dry material.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the drying of material.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Convert the platinum group metal salt to a sponge form

SAQA US ID		UNIT STANDARD TITLE	
256672		Convert the platinum group metal salt to a sponge form	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	5

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
11647	Convert platinum group metal salts to a sponge form	Level 3	5	Will occur as soon as 256672 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the conversion of the platinum group metal salt.

SPECIFIC OUTCOME 2

Prepare to convert the platinum group metal salt.

SPECIFIC OUTCOME 3

Convert the platinum group metal salt.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the conversion process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Stack material onto a blending stockpile by means of a stacker***

SAQA US ID		UNIT STANDARD TITLE	
256673		Stack material onto a blending stockpile by means of a stacker	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	3

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the stacking of material onto a blending stockpile by means of a stacker.

SPECIFIC OUTCOME 2

Prepare to stack material.

SPECIFIC OUTCOME 3

Stack material.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the stacking process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Recover uranium from solution by means of chemical precipitation

SAQA US ID	UNIT STANDARD TITLE		
256674	Recover uranium from solution by means of chemical precipitation		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	7

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
115616	Recover uranium from solution by means of chemical precipitation	Level 2	7	Will occur as soon as 256674 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the recovery of uranium from a solution by means of precipitation.

SPECIFIC OUTCOME 2

Prepare to precipitate uranium.

SPECIFIC OUTCOME 3

Precipitate uranium.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the precipitation process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

ID	QUALIFICATION TITLE	LEVEL
Elective 62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Recover precious metals from combustible waste by means of an incinerator

SAQA US ID	UNIT STANDARD TITLE		
256675	Recover precious metals from combustible waste by means of an incinerator		
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	6

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
110436	Recover precious metals from combustible waste by means of an incinerator	Level 2	6	Will occur as soon as 256675 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the incineration process.

SPECIFIC OUTCOME 2

Prepare to incinerate waste.

SPECIFIC OUTCOME 3

Incinerate waste.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the incineration process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Adsorb a dissolved metal onto an adsorbing agent

SAQA US ID	UNIT STANDARD TITLE		
256676	Adsorb a dissolved metal onto an adsorbing agent		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	5

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
10538	Adsorb dissolved gold onto activated carbon	Level 3	5	Will occur as soon as 256676 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to dissolved metal adsorption.

SPECIFIC OUTCOME 2

Prepare to adsorb dissolved metal.

SPECIFIC OUTCOME 3

Adsorb dissolved metal.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the adsorption process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Neutralize plant tailings for final disposal***

SAQA US ID		UNIT STANDARD TITLE	
256677		Neutralize plant tailings for final disposal	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	3

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
11648	Neutralise plant tailings for final disposal	Level 2	3	Will occur as soon as 256677 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the neutralizing process.

SPECIFIC OUTCOME 2

Prepare to neutralize tailings.

SPECIFIC OUTCOME 3

Neutralize tailings.

SPECIFIC OUTCOME 4

Complete duties pertaining to the neutralizing process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Remove redundant combination liner from an arc furnace

SAQA US ID	UNIT STANDARD TITLE		
256678	Remove redundant combination liner from an arc furnace		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	3

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
110428	Remove redundant combination liner from an arc furnace	Level 2	3	Will occur as soon as 256678 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to removing the redundant liner.

SPECIFIC OUTCOME 2

Prepare to replace the redundant liner.

SPECIFIC OUTCOME 3

Remove the redundant liner.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the liner removal process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Replace filter bags of a cyanide storage silo

SAQA US ID	UNIT STANDARD TITLE		
256679	Replace filter bags of a cyanide storage silo		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	6

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
110454	Replace merrill filter bags	Level 2	4	Will occur as soon as 256679 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the replacement of filter bags.

SPECIFIC OUTCOME 2

Prepare to replace filter bags.

SPECIFIC OUTCOME 3

Replace filter bags.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the filter bag replacement process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Separate precious metals by means of an hydrolysis process

SAQA US ID	UNIT STANDARD TITLE		
256680	Separate precious metals by means of an hydrolysis process		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	5

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
11091	Separate precious metals by means of a hydrolysis process	Level 3	5	Will occur as soon as 256680 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the hydrolysis process.

SPECIFIC OUTCOME 2

Prepare to hydrolyse precious metals.

SPECIFIC OUTCOME 3

Hydrolyse precious metals.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the hydrolysis process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

ID	QUALIFICATION TITLE	LEVEL
Elective 62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:**Clarify a solution**

SAQA US ID	UNIT STANDARD TITLE		
256681	Clarify a solution		
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	6

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the clarification of a solution.

SPECIFIC OUTCOME 2

Prepare to clarify solution.

SPECIFIC OUTCOME 3

Clarify solution.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the clarification process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Regenerate carbon by means of a rotary kiln***

SAQA US ID	UNIT STANDARD TITLE		
256682	Regenerate carbon by means of a rotary kiln		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	4

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
9739	Regenerate carbon by means of a rotary kiln	Level 3	4	Will occur as soon as 256682 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to carbon regeneration.

SPECIFIC OUTCOME 2

Prepare to regenerate carbon.

SPECIFIC OUTCOME 3

Regenerate carbon.

SPECIFIC OUTCOME 4

Complete duties pertaining to the regeneration process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Increase hydrochloric acid concentration by means of chlorine gas absorption***

SAQA US ID		UNIT STANDARD TITLE	
256683		Increase hydrochloric acid concentration by means of chlorine gas absorption	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	8

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

SPECIFIC OUTCOME 1

Demonstrate knowledge and understanding relating to the absorption of chlorine gas.

SPECIFIC OUTCOME 2

Prepare to absorb chlorine gas.

SPECIFIC OUTCOME 3

Absorb chlorine gas.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the absorption process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Separate material by means of a wet high intensity magnetic separator (WHIMS)

SAQA US ID	UNIT STANDARD TITLE		
256684	Separate material by means of a wet high intensity magnetic separator (WHIMS)		
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	5

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
11663	Separate material by means of a wet high intensity magnetic separator (WHIMS)	Level 3	5	Will occur as soon as 256684 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the separation process.

SPECIFIC OUTCOME 2

Prepare to separate material.

SPECIFIC OUTCOME 3

Separate material.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the separation process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Increase redox potential of hydrochloric acid by means of chlorine gas absorption

SAQA US ID	UNIT STANDARD TITLE		
256685	Increase redox potential of hydrochloric acid by means of chlorine gas absorption		
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	8

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
115597	Increase redox potential of hydrochloric acid by means of chlorine gas absorption	Level 3	8	Will occur as soon as 256685 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the absorption of chlorine gas.

SPECIFIC OUTCOME 2

Prepare to absorb chlorine gas.

SPECIFIC OUTCOME 3

Absorb chlorine gas.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the absorption process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Load material into railway trucks by means of an automated loading station***

SAQA US ID	UNIT STANDARD TITLE		
256686	Load material into railway trucks by means of an automated loading station		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	9

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
11092	Load material into railway trucks by means of an automated loading station	Level 3	9	Will occur as soon as 256686 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the loading of railway trucks.

SPECIFIC OUTCOME 2

Prepare to load railway trucks.

SPECIFIC OUTCOME 3

Load railway trucks.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the loading process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Extract a metal from a solution by means of solvent extraction

SAQA US ID	UNIT STANDARD TITLE		
256687	Extract a metal from a solution by means of solvent extraction		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	5

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
9586	Extract a metal from a solution by means of solvent extraction	Level 3	5	Will occur as soon as 256687 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the extraction of a metal from a solution.

SPECIFIC OUTCOME 2

Prepare to extract a metal.

SPECIFIC OUTCOME 3

Extract metal.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the metal extraction process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Construct a tailings dam catwalk

SAQA US ID	UNIT STANDARD TITLE		
256688	Construct a tailings dam catwalk		
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	7

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
9726	Construct a tailing dam catwalk	Level 3	7	Will occur as soon as 256688 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the construction of a catwalk.

SPECIFIC OUTCOME 2

Prepare to construct a catwalk.

SPECIFIC OUTCOME 3

Construct a catwalk.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the construction of a catwalk.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Dissolve precious metals in a chemical

SAQA US ID	UNIT STANDARD TITLE		
256689	Dissolve precious metals in a chemical		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	5

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
11081	Dissolve precious metals in an acid medium	Level 3	5	Will occur as soon as 256689 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the dissolution process.

SPECIFIC OUTCOME 2

Prepare to dissolve metals.

SPECIFIC OUTCOME 3

Dissolve metals.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the dissolution process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

ID	QUALIFICATION TITLE	LEVEL
Elective 62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Produce platinum ingots by means of a furnace

SAQA US ID	UNIT STANDARD TITLE		
256690	Produce platinum ingots by means of a furnace		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	5

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
11093	Produce Platinum ingots by means of a furnace	Level 3	5	Will occur as soon as 256690 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the platinum ingot production process.

SPECIFIC OUTCOME 2

Prepare to produce platinum ingots.

SPECIFIC OUTCOME 3

Produce platinum ingots.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the platinum ingot production process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Deposit tailings onto a paddock-type dam

SAQA US ID	UNIT STANDARD TITLE		
256691	Deposit tailings onto a paddock-type dam		
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	7

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
9727	Deposit tailings onto a paddock-type dam	Level 3	7	Will occur as soon as 256691 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the deposition of tailings.

SPECIFIC OUTCOME 2

Prepare to deposit tailings.

SPECIFIC OUTCOME 3

Deposit tailings using the paddock method.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the deposition of tailings.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Produce bullion by means of a furnace***

SAQA US ID	UNIT STANDARD TITLE		
256693	Produce bullion by means of a furnace		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	5

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
9587	Produce bullion by means of a furnace	Level 3	5	Will occur as soon as 256693 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to bullion production.

SPECIFIC OUTCOME 2

Prepare to produce bullion.

SPECIFIC OUTCOME 3

Produce bullion.

SPECIFIC OUTCOME 4

Complete the bullion production process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

ID	QUALIFICATION TITLE	LEVEL
Elective 62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Remove impurities from PGM bearing liquor by means of a hydrolysis process

SAQA US ID	UNIT STANDARD TITLE		
256694	Remove impurities from PGM bearing liquor by means of a hydrolysis process		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	4

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
11080	Remove impurities from PGM bearing liquor by means of a hydrolysis process	Level 2	4	Will occur as soon as 256694 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the hydrolysis process.

SPECIFIC OUTCOME 2

Prepare to hydrolyse liquor.

SPECIFIC OUTCOME 3

Hydrolyse liquor.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the hydrolysis process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Dispatch platinum group metals

SAQA US ID	UNIT STANDARD TITLE		
256695	Dispatch platinum group metals		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	4

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
11649	Dispatch platinum group metals	Level 2	4	Will occur as soon as 256695 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the dispatch process.

SPECIFIC OUTCOME 2

Prepare to dispatch platinum group metals.

SPECIFIC OUTCOME 3

Dispatch platinum group metals.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the dispatch process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Maintain routine tailings dam performance records

SAQA US ID	UNIT STANDARD TITLE		
256696	Maintain routine tailings dam performance records		
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	4

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
9731	Maintain routine tailings dam performance records	Level 3	4	Will occur as soon as 256696 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the maintaining of routine tailings dam performance records.

SPECIFIC OUTCOME 2

Prepare to measure routine performance.

SPECIFIC OUTCOME 3

Conduct routine performance inspection.

SPECIFIC OUTCOME 4

Complete duties pertaining to the maintaining of a daily logbook.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Maintain grinding medium load in a rod mill

SAQA US ID		UNIT STANDARD TITLE	
256697		Maintain grinding medium load in a rod mill	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
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

Demonstrate knowledge relating to maintaining grinding medium load.

SPECIFIC OUTCOME 2

Determine rod replacement requirements.

SPECIFIC OUTCOME 3

Prepare to load rods.

SPECIFIC OUTCOME 4

Load rods.

SPECIFIC OUTCOME 5

Complete the duties pertaining to the rod loading operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Remove impurities from molten metal by means of a converting process***

SAQA US ID		UNIT STANDARD TITLE	
256698		Remove impurities from molten metal by means of a converting process	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
10540	Remove impurities from molten metal by means of a converting process	Level 3	10	Will occur as soon as 256698 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the removing of impurities from molten metal by means of converting process.

SPECIFIC OUTCOME 2

Prepare to remove impurities.

SPECIFIC OUTCOME 3

Remove impurities.

SPECIFIC OUTCOME 4

Complete the converting process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Mine fine granular material by means of hydraulic monitoring

SAQA US ID	UNIT STANDARD TITLE		
256699	Mine fine granular material by means of hydraulic monitoring		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	7

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
9736	Mine fine granular material by means of hydraulic monitoring	Level 3	7	Will occur as soon as 256699 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the hydraulic mining of fine granular material.

SPECIFIC OUTCOME 2

Prepare to mine fine granular material.

SPECIFIC OUTCOME 3

Mine fine granular material by means of a high-pressure water cannon.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the hydraulic mining operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Adsorb a dissolved precious metal onto resin

SAQA US ID	UNIT STANDARD TITLE		
256700	Adsorb a dissolved precious metal onto resin		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	7

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
10545	Adsorb a dissolved precious metal onto resin	Level 3	7	Will occur as soon as 256700 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to precious metal adsorption.

SPECIFIC OUTCOME 2

Prepare to adsorb a precious metal.

SPECIFIC OUTCOME 3

Adsorb a precious metal.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the adsorption process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

ID	QUALIFICATION TITLE	LEVEL
Elective 62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Recover luminescent material by means of an x-ray sorter

SAQA US ID	UNIT STANDARD TITLE		
256701	Recover luminescent material by means of an x-ray sorter		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	2

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the recovery of luminescent material.

SPECIFIC OUTCOME 2

Prepare to recover luminescent material.

SPECIFIC OUTCOME 3

Recover luminescent material.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the recovery of luminescent material.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:*Recover diamonds by means of a grease belt*

SAQA US ID	UNIT STANDARD TITLE		
256702	Recover diamonds by means of a grease belt		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	4

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
11073	Recover diamonds by means of a grease belt	Level 3	4	Will occur as soon as 256702 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the recovery of diamonds.

SPECIFIC OUTCOME 2

Prepare to recover diamonds.

SPECIFIC OUTCOME 3

Recover diamonds.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the diamond recovery process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Manufacture starter sheets for an electro-winning process***

SAQA US ID	UNIT STANDARD TITLE		
256703	Manufacture starter sheets for an electro-winning process		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	3

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
110429	Manufacture starter sheets for an electro-winning process	Level 3	3	Will occur as soon as 256703 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the manufacturing of starter sheets

SPECIFIC OUTCOME 2

Prepare to manufacture starter sheets.

SPECIFIC OUTCOME 3

Manufacture starter sheets.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the manufacturing of starter sheets.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

ID	QUALIFICATION TITLE	LEVEL
Elective 62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Control an ore storage and transport system***

SAQA US ID		UNIT STANDARD TITLE	
256704		Control an ore storage and transport system	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the control of an ore storage and transport system.

SPECIFIC OUTCOME 2

Prepare to control an ore storage and transport system.

SPECIFIC OUTCOME 3

Control an ore storage and transport system.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the control of an ore storage and transport system.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Calcine metal bearing concentrate

SAQA US ID	UNIT STANDARD TITLE		
256705	Calcine metal bearing concentrate		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	2

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
9588	Calcine metal bearing concentrate	Level 2	2	Will occur as soon as 256705 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the calcining of concentrate.

SPECIFIC OUTCOME 2

Prepare to calcine concentrate.

SPECIFIC OUTCOME 3

Calcine concentrate.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the calcining process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Transfer material by means of a metal-type conveyor

SAQA US ID	UNIT STANDARD TITLE		
256706	Transfer material by means of a metal-type conveyor		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	4

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
110380	Transfer material by means of a metal-type conveyor	Level 2	4	Will occur as soon as 256706 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the transfer of material.

SPECIFIC OUTCOME 2

Prepare to transfer material.

SPECIFIC OUTCOME 3

Transfer material.

SPECIFIC OUTCOME 4

Complete duties pertaining to the material transfer process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

ID	QUALIFICATION TITLE	LEVEL
Elective 62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:*Separate material by means of a magnetic separator*

SAQA US ID		UNIT STANDARD TITLE	
256715		Separate material by means of a magnetic separator	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	3

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the separation process.

SPECIFIC OUTCOME 2

Prepare to separate material.

SPECIFIC OUTCOME 3

Separate material.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the separation process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Make-up a cyanide solution in a metallurgical plant

SAQA US ID	UNIT STANDARD TITLE		
256716	Make-up a cyanide solution in a metallurgical plant		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	6

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
15302	Make-up a cyanide solution in a metallurgical plant	Level 3	6	Will occur as soon as 256716 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the making up of a cyanide solution.

SPECIFIC OUTCOME 2

Prepare to make-up a cyanide solution.

SPECIFIC OUTCOME 3

Make-up a cyanide solution.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the making up of a cyanide solution.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Leach gold-bearing material by means of chlorine

SAQA US ID	UNIT STANDARD TITLE		
256717	Leach gold-bearing material by means of chlorine		
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	9

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
10547	Leach gold-bearing material by means of chlorine	Level 3	9	Will occur as soon as 256717 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the leaching of gold-bearing material.

SPECIFIC OUTCOME 2

Prepare to leach material.

SPECIFIC OUTCOME 3

Leach material.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the leaching process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:*Recover a metal from a solution by means of electrolytic precipitation*

SAQA US ID		UNIT STANDARD TITLE	
256718		Recover a metal from a solution by means of electrolytic precipitation	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
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

Demonstrate knowledge relating to the precipitation process.

SPECIFIC OUTCOME 2

Prepare to precipitate a metal.

SPECIFIC OUTCOME 3

Precipitate a metal.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the precipitation process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

De-aerate a solution by means of a Crowe tower

SAQA US ID		UNIT STANDARD TITLE	
256719		De-aerate a solution by means of a Crowe tower	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	12

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
110443	De-aerate a solution by means of Crowe tower	Level 3	12	Will occur as soon as 256719 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the de-aeration of a solution.

SPECIFIC OUTCOME 2

Prepare to de-aerate a solution.

SPECIFIC OUTCOME 3

De-aerate a solution.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the de-aeration process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Reline a mill by means of a hydraulic relining machine

SAQA US ID	UNIT STANDARD TITLE		
256720	Reline a mill by means of a hydraulic relining machine		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	8

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
110445	Reline a mill by means of a hydraulic relining machine	Level 3	8	Will occur as soon as 256720 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to relining a mill.

SPECIFIC OUTCOME 2

Prepare to reline a mill.

SPECIFIC OUTCOME 3

Reline a mill.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the relining operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Leach gold from a gravity concentrate by means of an inline leach reactor

SAQA US ID	UNIT STANDARD TITLE		
256721	Leach gold from a gravity concentrate by means of an inline leach reactor		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	7

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
15294	Leach gold from a gravity concentrate by means of an inline leach reactor	Level 3	7	Will occur as soon as 256721 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to leaching gold from a gravity concentrate by means of an inline leach reactor.

SPECIFIC OUTCOME 2

Prepare to leach gold.

SPECIFIC OUTCOME 3

Leach gold.

SPECIFIC OUTCOME 4

Complete duties pertaining to the leaching process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

ID	QUALIFICATION TITLE	LEVEL
Elective 62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Control medium density in a dense medium separation process***

SAQA US ID	UNIT STANDARD TITLE		
256722	Control medium density in a dense medium separation process		
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	6

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
11069	Control medium density in a dense medium separation process	Level 3	6	Will occur as soon as 256722 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the control of medium density..

SPECIFIC OUTCOME 2

Prepare to control medium density.

SPECIFIC OUTCOME 3

Control medium density.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the controlling process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Make-up a Hydrochloric acid solution in a metallurgical plant

SAQA US ID	UNIT STANDARD TITLE		
256723	Make-up a Hydrochloric acid solution in a metallurgical plant		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	4

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
15298	Make-up a hydrochloric acid solution in a metallurgical plant	Level 2	4	Will occur as soon as 256723 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the making up of a hydrochloric acid solution.

SPECIFIC OUTCOME 2

Prepare to make-up a hydrochloric acid solution.

SPECIFIC OUTCOME 3

Make-up a hydrochloric acid solution.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the making up of a hydrochloric acid solution.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Extract a specific platinum group metal from a solution by means of a chemical process

SAQA US ID	UNIT STANDARD TITLE		
256724	Extract a specific platinum group metal from a solution by means of a chemical process		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
11067	Extract a specific platinum group metal from a solution by means of a chemical process	Level 3	10	Will occur as soon as 256724 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the extraction process.

SPECIFIC OUTCOME 2

Prepare to extract a metal.

SPECIFIC OUTCOME 3

Extract metal.

SPECIFIC OUTCOME 4

Complete duties pertaining to the metal extraction process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:*Condition material for further processing*

SAQA US ID	UNIT STANDARD TITLE		
256725	Condition material for further processing		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	3

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
110115	Condition material for further processing	Level 2	3	Will occur as soon as 256725 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the conditioning process.

SPECIFIC OUTCOME 2

Prepare to condition material.

SPECIFIC OUTCOME 3

Condition material.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the conditioning process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

ID	QUALIFICATION TITLE	LEVEL
Elective 62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Remove solid impurities from a liquid by means of a Funda filter

SAQA US ID	UNIT STANDARD TITLE		
256726	Remove solid impurities from a liquid by means of a Funda filter		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	6

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
110408	Remove solid impurities from a liquid by means of a Funda filter	Level 2	6	Will occur as soon as 256726 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the solid removal of solid impurities from a liquid.

SPECIFIC OUTCOME 2

Prepare to remove solid impurities from a liquid.

SPECIFIC OUTCOME 3

Remove solid impurities from a liquid.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the solid removal process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Oxidise concentrates by means of the Biox® process

SAQA US ID		UNIT STANDARD TITLE	
256727		Oxidise concentrates by means of the Biox® process	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	14

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the Biox® process.

SPECIFIC OUTCOME 2

Prepare to oxidise concentrates.

SPECIFIC OUTCOME 3

Oxidise concentrates.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the oxidation of concentrates.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Produce demineralised water by means of a DEMIN plant***

SAQA US ID		UNIT STANDARD TITLE	
256735		Produce demineralised water by means of a DEMIN plant	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the demineralised process.

SPECIFIC OUTCOME 2

Prepare to produce de-ionised water.

SPECIFIC OUTCOME 3

Produce de-ionised water.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the demineralisation process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Make up sulphurous acid in a metallurgical plant

SAQA US ID	UNIT STANDARD TITLE		
256736	Make up sulphurous acid in a metallurgical plant		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	4

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
110189	Make up sulphurous acid in a metallurgical plant	Level 2	4	Will occur as soon as 256736 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the make up of sulphurous acid.

SPECIFIC OUTCOME 2

Prepare to make up sulphurous acid.

SPECIFIC OUTCOME 3

Make up sulphurous acid.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the sulphurous acid make up process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Reduce metal bearing material in a pressure vessel***

SAQA US ID	UNIT STANDARD TITLE		
256737	Reduce metal bearing material in a pressure vessel		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	6

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
110124	Reduce metal bearing material in a pressure vessel	Level 3	6	Will occur as soon as 256737 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the reduction of metal bearing material in a pressure vessel.

SPECIFIC OUTCOME 2

Prepare to reduce material.

SPECIFIC OUTCOME 3

Reduce material.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the reduction process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Tap molten material from an ASARCO furnace

SAQA US ID		UNIT STANDARD TITLE	
256738		Tap molten material from an ASARCO furnace	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
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

Demonstrate knowledge relating to tapping molten material from an ASARCO furnace.

SPECIFIC OUTCOME 2

Prepare to tap material.

SPECIFIC OUTCOME 3

Tap material.

SPECIFIC OUTCOME 4

Complete duties pertaining to the tapping process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Produce copper bar by means of a continuous casting process

SAQA US ID		UNIT STANDARD TITLE	
256739		Produce copper bar by means of a continuous casting process	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	5

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the casting of copper bar.

SPECIFIC OUTCOME 2

Prepare to cast copper bar.

SPECIFIC OUTCOME 3

Cast copper bar.

SPECIFIC OUTCOME 4

Complete the copper bar casting process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Transfer a gas by means of a gas transfer pump

SAQA US ID	UNIT STANDARD TITLE		
256740	Transfer a gas by means of a gas transfer pump		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	6

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
110400	Transfer gas by means of a gas transfer pump	Level 3	6	Will occur as soon as 256740 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the transferring of a gas.

SPECIFIC OUTCOME 2

Prepare to transfer gas.

SPECIFIC OUTCOME 3

Transfer gas.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the gas transfer process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Pulverise Material by means of a Vertical Ball Type Pulveriser***

SAQA US ID	UNIT STANDARD TITLE		
256741	Pulverise Material by means of a Vertical Ball Type Pulveriser		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
115627	Pulverise material by means of a vertical ball type pulveriser	Level 3	10	Will occur as soon as 256741 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to pulverise material by means of a vertical ball type pulveriser.

SPECIFIC OUTCOME 2

Prepare to pulverise material.

SPECIFIC OUTCOME 3

Pulverise material.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the pulverising process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Pull electrodes in an electro-winning process***

SAQA US ID	UNIT STANDARD TITLE		
256755	Pull electrodes in an electro-winning process		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	4

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
115639	Pull electrodes in an electro-winning process	Level 2	4	Will occur as soon as 256755 is registered

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the pulling of electrodes.

SPECIFIC OUTCOME 2

Prepare to pull electrodes.

SPECIFIC OUTCOME 3

Pull electrodes.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the pulling of electrodes.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:**Mix material for pelletizing**

SAQA US ID	UNIT STANDARD TITLE		
256756	Mix material for pelletizing		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	8

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the mixing of material.

SPECIFIC OUTCOME 2

Prepare to mix material.

SPECIFIC OUTCOME 3

Mix material.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the mixing process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Produce pellets by means of a pelletizer***

SAQA US ID	UNIT STANDARD TITLE		
256775	Produce pellets by means of a pelletizer		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the production of pellets by means of a pelletizer.

SPECIFIC OUTCOME 2

Prepare to produce pellets.

SPECIFIC OUTCOME 3

Produce pellets.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the pellet production process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Move equipment by means of an electric winch

SAQA US ID	UNIT STANDARD TITLE		
256776	Move equipment by means of an electric winch		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	2

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the moving of equipment.

SPECIFIC OUTCOME 2

Prepare to move equipment.

SPECIFIC OUTCOME 3

Move equipment.

SPECIFIC OUTCOME 4

Complete duties pertaining to the moving process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Neutralize waste acid in a metallurgical plant***

SAQA US ID		UNIT STANDARD TITLE	
256777		Neutralize waste acid in a metallurgical plant	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 2	3

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the neutralising process.

SPECIFIC OUTCOME 2

Prepare to neutralise waste acid.

SPECIFIC OUTCOME 3

Neutralise waste acid.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the neutralising process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Dry and preheat green pellets***

SAQA US ID		UNIT STANDARD TITLE	
256795		Dry and preheat green pellets	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the drying and preheating of green pellets.

SPECIFIC OUTCOME 2

Prepare to dry and preheat of green pellets.

SPECIFIC OUTCOME 3

Dry and preheat green pellets.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the drying and preheating process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Install electrode casings of an arc furnace

SAQA US ID		UNIT STANDARD TITLE	
256815		Install electrode casings of an arc furnace	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
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

Demonstrate knowledge relating to the installation of electrode casings.

SPECIFIC OUTCOME 2

Prepare to install electrode casings.

SPECIFIC OUTCOME 3

Install electrode casings.

SPECIFIC OUTCOME 4

Complete the duties pertaining to installation of electrode casings.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Shut down a furnace for maintenance

SAQA US ID	UNIT STANDARD TITLE		
256816	Shut down a furnace for maintenance		
ORIGINATOR	PROVIDER		
SGB Mining and Minerals			
FIELD	SUBFIELD		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to the shutdown of a furnace for maintenance.

SPECIFIC OUTCOME 2

Prepare to shutdown the furnace.

SPECIFIC OUTCOME 3

Shutdown the furnace.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the shutdown process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Control slipping and baking of electrodes in an electric arc furnace***

SAQA US ID		UNIT STANDARD TITLE	
256817		Control slipping and baking of electrodes in an electric arc furnace	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	14

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to control of slipping and baking of electrodes.

SPECIFIC OUTCOME 2

Prepare to control slipping and baking.

SPECIFIC OUTCOME 3

Slipping and baking of electrodes.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the slipping and baking process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Control Proportioning of raw material***

SAQA US ID		UNIT STANDARD TITLE	
256818		Control Proportioning of raw material	
ORIGINATOR		PROVIDER	
SGB Mining and Minerals			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	11

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

SPECIFIC OUTCOME 1

Demonstrate knowledge relating to controlling the proportioning of raw materials.

SPECIFIC OUTCOME 2

Prepare to control the proportioning.

SPECIFIC OUTCOME 3

Control proportioning.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the Proportioning process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	62769	National Certificate: Mineral Processing	Level 3