

## National Certificate: Mineral Processing NQF Level 3

**Introduction:** 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.

### SAQA Qualification ID: 62769

<b>Target group:</b> Existing employees identified for promotion.	<b>Certification:</b> The qualification is composed of Fundamental, Core and Elective learning components:  <ul style="list-style-type: none"> <li>▪ Fundamental: 36 credits (compulsory)</li> <li>▪ Core: 36 credits (compulsory)</li> <li>▪ Elective: A minimum of 58 elective credits is required for this qualification.</li> </ul>	<b>Duration:</b> 26 Weeks
<b>Entry Level Requirements:</b> <ul style="list-style-type: none"> <li>▪ Minimum Mathematical Literacy NQF Level 2</li> <li>▪ Communication NQF Level 2</li> </ul>	<b>If competent a competence certificate will be issued by MQA</b>	

### QUALIFICATION OUTLINE

	Unit standard ID	UNIT STANDARD TITLE	Credits	Duration:
Core	<a href="#">115101</a>	Address workplace hazards and risks	4	26 Weeks
Core	<a href="#">14342</a>	Manage time and work processes within a business environment	4	
Core	<a href="#">115091</a>	Monitor compliance to safety, health and environmental requirements in a workplace	2	
Core	<a href="#">116534</a>	Carry out basic first aid treatment in the workplace	2	
Core	<a href="#">115093</a>	Control workplace hazardous substances	4	
Core	<a href="#">120331</a>	Demonstrate knowledge pertaining to fires in working places	3	
Core	<a href="#">256657</a>	Perform minor process maintenance on metallurgical process equipment	10	
Core	<a href="#">256656</a>	Prepare for maintenance in a metallurgical plant	5	
Core	<a href="#">120329</a>	Respond to, implement and manage emergencies according to an emergency action plan in a workplace	2	
Fundamental	<a href="#">119472</a>	Accommodate audience and context needs in oral/signed communication	5	
Fundamental	<a href="#">9010</a>	Demonstrate an understanding of the use of different number bases and measurement units and an awareness of error in the context of relevant calculations	2	

Fundamental	<a href="#">9013</a>	Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts	4
Fundamental	<a href="#">119457</a>	Interpret and use information from texts	5
Fundamental	<a href="#">9012</a>	Investigate life and work related problems using data and probabilities	5
Fundamental	<a href="#">119467</a>	Use language and communication in occupational learning programmes	5
Fundamental	<a href="#">7456</a>	Use mathematics to investigate and monitor the financial aspects of personal, business and national issues	5
Fundamental	<a href="#">119465</a>	Write/present/sign texts for a range of communicative contexts	5
Elective	<a href="#">256705</a>	Calcine metal bearing concentrate	2
Elective	<a href="#">256681</a>	Clarify a solution	6
Elective	<a href="#">256725</a>	Condition material for further processing	3
Elective	<a href="#">256666</a>	Dewater solids in a metallurgical plant	7
Elective	<a href="#">256695</a>	Dispatch platinum group metals	4
Elective	<a href="#">256660</a>	Generate hot gas	4
Elective	<a href="#">252335</a>	Handle acids safely in a metallurgical plant	6
Elective	<a href="#">256655</a>	Handle hydrogen peroxide safely in a metallurgical plant	4
Elective	<a href="#">256736</a>	Make up sulphurous acid in a metallurgical plant	4
Elective	<a href="#">256723</a>	Make-up a Hydrochloric acid solution in a metallurgical plant	4
Elective	<a href="#">256703</a>	Manufacture starter sheets for an electro-winning process	3
Elective	<a href="#">256756</a>	Mix material for pelletizing	8
Elective	<a href="#">256776</a>	Move equipment by means of an electric winch	2
Elective	<a href="#">256677</a>	Neutralize plant tailings for final disposal	3
Elective	<a href="#">256777</a>	Neutralize waste acid in a metallurgical plant	3
Elective	<a href="#">256665</a>	Press liquids from solids in a metallurgical plant	7
Elective	<a href="#">256755</a>	Pull electrodes in an electro-winning process	4
Elective	<a href="#">256701</a>	Recover luminescent material by means of an x-ray sorter	2
Elective	<a href="#">256668</a>	Recover organic solvent from an aqueous metal compound solution, by means of a distillation process	3
Elective	<a href="#">256675</a>	Recover precious metals from combustible waste by means of an incinerator	6
Elective	<a href="#">252342</a>	Regenerate organic solvent	4
Elective	<a href="#">256694</a>	Remove impurities from PGM bearing liquor by means of a hydrolysis process	4
Elective	<a href="#">256678</a>	Remove redundant combination liner from an arc furnace	3
Elective	<a href="#">256726</a>	Remove solid impurities from a liquid by means of a Funda filter	6
Elective	<a href="#">256679</a>	Replace filter bags of a cyanide storage silo	6
Elective	<a href="#">256658</a>	Straighten cathodes by means of a hydraulic press	4
Elective	<a href="#">256706</a>	Transfer material by means of a metal-type conveyor	4
Elective	<a href="#">256667</a>	Transfer material by means of pneumatic conveying system	4
Elective	<a href="#">256676</a>	Adsorb a dissolved metal onto an adsorbing agent	5
Elective	<a href="#">256700</a>	Adsorb a dissolved precious metal onto resin	7
Elective	<a href="#">256688</a>	Construct a tailings dam catwalk	7
Elective	<a href="#">256704</a>	Control an ore storage and transport system	10

Elective	<a href="#">256722</a>	Control medium density in a dense medium separation process	6
Elective	<a href="#">256818</a>	Control Proportioning of raw material	11
Elective	<a href="#">256817</a>	Control slipping and baking of electrodes in an electric arc furnace	14
Elective	<a href="#">256672</a>	Convert the platinum group metal salt to a sponge form	5
Elective	<a href="#">253339</a>	Crush material in a metallurgical plant	9
Elective	<a href="#">256719</a>	De-aerate a solution by means of a Crowe tower	12
Elective	<a href="#">256691</a>	Deposit tailings onto a paddock-type dam	7
Elective	<a href="#">256689</a>	Dissolve precious metals in a chemical	5
Elective	<a href="#">256795</a>	Dry and preheat green pellets	10
Elective	<a href="#">256671</a>	Dry material by means of a thermal process	7
Elective	<a href="#">256670</a>	Elute a metal from an adsorbing agent	6
Elective	<a href="#">256687</a>	Extract a metal from a solution by means of solvent extraction	5
Elective	<a href="#">256724</a>	Extract a specific platinum group metal from a solution by means of a chemical process	10
Elective	<a href="#">256659</a>	Generate airflow	6
Elective	<a href="#">256662</a>	Grind material in a metallurgical plant	11
Elective	<a href="#">256683</a>	Increase hydrochloric acid concentration by means of chlorine gas absorption	8
Elective	<a href="#">256685</a>	Increase redox potential of hydrochloric acid by means of chlorine gas absorption	8
Elective	<a href="#">256815</a>	Install electrode casings of an arc furnace	12
Elective	<a href="#">256721</a>	Leach gold from a gravity concentrate by means of an inline leach reactor	7
Elective	<a href="#">256717</a>	Leach gold-bearing material by means of chlorine	9
Elective	<a href="#">256664</a>	Leach metal bearing material in a metallurgical plant	6
Elective	<a href="#">256686</a>	Load material into railway trucks by means of an automated loading station	9
Elective	<a href="#">256697</a>	Maintain grinding medium load in a rod mill	4
Elective	<a href="#">256696</a>	Maintain routine tailings dam performance records	4
Elective	<a href="#">256716</a>	Make-up a cyanide solution in a metallurgical plant	6
Elective	<a href="#">256699</a>	Mine fine granular material by means of hydraulic monitoring	7
Elective	<a href="#">256663</a>	Neutralize cyanide spillage	5
Elective	<a href="#">256727</a>	Oxidise concentrates by means of the Biox® process	14
Elective	<a href="#">256693</a>	Produce bullion by means of a furnace	5
Elective	<a href="#">256739</a>	Produce copper bar by means of a continuous casting process	5
Elective	<a href="#">256735</a>	Produce demineralised water by means of a DEMIN plant	10
Elective	<a href="#">256775</a>	Produce pellets by means of a pelletizer	10
Elective	<a href="#">256690</a>	Produce platinum ingots by means of a furnace	5
Elective	<a href="#">256741</a>	Pulverise Material by means of a Vertical Ball Type Pulveriser	10
Elective	<a href="#">256718</a>	Recover a metal from a solution by means of electrolytic precipitation	4
Elective	<a href="#">256661</a>	Recover a mineral from ore by means of froth flotation	10
Elective	<a href="#">256702</a>	Recover diamonds by means of a grease belt	4
Elective	<a href="#">256674</a>	Recover uranium from solution by means of chemical precipitation	7

Elective	<a href="#">256737</a>	Reduce metal bearing material in a pressure vessel	6	
Elective	<a href="#">256682</a>	Regenerate carbon by means of a rotary kiln	4	
Elective	<a href="#">256669</a>	Reline a mill	12	
Elective	<a href="#">256720</a>	Reline a mill by means of a hydraulic relining machine	8	
Elective	<a href="#">256698</a>	Remove impurities from molten metal by means of a converting process	10	
Elective	<a href="#">252301</a>	Separate material by means of a dry high intensity magnetic separator	3	
Elective	<a href="#">256715</a>	Separate material by means of a magnetic separator	3	
Elective	<a href="#">256684</a>	Separate material by means of a wet high intensity magnetic separator (WHIMS)	5	
Elective	<a href="#">252307</a>	Separate material by means of an electrostatic separator	3	
Elective	<a href="#">256680</a>	Separate precious metals by means of an hydrolysis process	5	
Elective	<a href="#">256816</a>	Shut down a furnace for maintenance	10	
Elective	<a href="#">256673</a>	Stack material onto a blending stockpile by means of a stacker	3	
Elective	<a href="#">256738</a>	Tap molten material from an ASARCO furnace	6	
Elective	<a href="#">256740</a>	Transfer a gas by means of a gas transfer pump	6	
			<b>Duration</b>	26 Weeks