

National Vocational Certificate in Metallurgy (Level 3) (Junior Operator)
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Level of Qualification: 3

Credit total: 110 - 130 (depending on strand)

	Compulsory	Mineral Processing Strand		
		Compulsory		Elective
		Set A	Set B	
level 1 credits available	-	-	2	-
level 2 credits available	13	-	55	-
level 3 credits available	39	10	-	91
minimum totals required	52	10	37 - 38	25

	Hydrometallurgical Processing Strand			Pyrometallurgical Processing Strand		
	Compulsory		Elective	Compulsory		Elective
	Set A	Set B		Set A	Set B	
level 1 credits available	-	4	-	-	-	-
level 2 credits available	6	47	28	3	39	4
level 3 credits available	6	13	66	14	18	28
minimum totals required	12	41	25	17	29 - 44	12

Registration date: 28 September 2016

Scheduled review date: 2021

Body responsible for the qualification: Namibia Training Authority (NTA) - Industry Skills Committee for Mining; Quarrying; Construction; Electricity, Gas and Water supply; and Sanitation (MQCEGWS)

Other bodies whose unit standards are included in the qualification:
Namibia Training Authority - NTA

1. Purpose

This Qualification has been developed to assist with the advancement of people across different mining industries in which metallurgical processing operations are carried out. The intention of this qualification is to assist;

- Those who have been in the workplace for a long time, by using the recognition of prior learning process to assess and recognise workplace skills acquired without the benefit of formal education and training;
- New entrants, by describing the learning outcomes required to participate effectively, e.g. in a structured workplace programme;
- Education and training providers, by providing guidance for the development of appropriate learning programmes and assessment documentation;

- Employers, by enabling skills gaps to be identified and addressed ensuring that productivity levels are increased and business objectives achieved.

Training programmes leading to the award of this qualification will address the on-going demand for qualified junior operators working in a metallurgical plant in Namibia by equipping learners with knowledge, understanding, skills and application techniques, which enable them to identify and report defective equipment and breakdowns before preparing for routine maintenance, operate and control pumps and auxiliary machinery under general supervision of a senior operator.

As a result, this qualification provides opportunities for self- or paid employment acting as a reward for contributions to society by facilitating social and economic transformation, empowerment and general upliftment of the mining industry and country in general.

The strands of this qualification are designed to recognise the specialised skills in Mineral Processing, Hydrometallurgical Processing, and Pyrometallurgical Processing, enabling the qualification to be tailored to meet the demand of particular sections in metallurgical operations in the different mining industries.

This qualification is based on the assumption that people entering programmes of study leading towards the certificate have already demonstrated ability in metallurgical processing operations. Consequently, the National Vocational Certificate in Metallurgy (Level 2) (Operator Attendant), or the demonstration of equivalent knowledge and skills, is a prerequisite for entry to this qualification.

This qualification represents a stage of progression to the National Vocational Certificate in Metallurgy (Level 3) (Operator) with strands in Mineral Processing; Hydrometallurgical Processing; and/or Pyrometallurgical Processing.

2. Regulations for the qualification

2.1 Summary of qualification requirements

This qualification will be awarded to people who are credited with:

- i. Requirements of the compulsory set.
- ii. Requirements of the strand compulsory sets A and B and strand elective set in one (1) of the following strands:
 - Mineral Processing,
 - Hydrometallurgical Processing, or
 - Pyrometallurgical Processing.

2.2 Detailed qualification requirements

Compulsory set

The following unit standards are required

FIELD: PHYSICAL PLANNING AND CONSTRUCTION
Subfield: Metallurgy
Domain: Metallurgical Processing - Core

Unit No.	Unit Standard Title	Level	Credits
1478	Apply hazard identification and risk assessment procedures in the workplace	3	5
1479	Control workplace hazardous substances	3	7
1480	Demonstrate knowledge of regulatory requirements pertaining to process plant operations	2	5
1481	Demonstrate knowledge of interlock and shut down sequence	3	3
1482	Use and maintain portable engineering power tools	2	4
1483	Transfer fluids by means of a pump	3	6
1484	Operate auxiliary plant and equipment	3	10
1485	Conduct sampling in a metallurgical process	2	4
1486	Request materials, tools and equipment as part of process plant operations	3	8

Mineral Processing Strand

Compulsory Set A

The following unit standards are required

FIELD: PHYSICAL PLANNING AND CONSTRUCTION
Subfield: Metallurgy
Domain: Mineral Processing

Unit No.	Unit Standard Title	Level	Credits
1536	Perform size separation in a metallurgical plant	3	6
1537	Control feed distribution by means of a mobile system	3	4

Compulsory Set B

All strand specific requirements (Mineral Processing Strand) of Q0754 in Metallurgy (Level 2) (Operator Attendant)

Elective Set

A minimum of 25 credits is required

FIELD: PHYSICAL PLANNING AND CONSTRUCTION
Subfield: Metallurgy
Domain: Mineral Processing

Unit No.	Unit Standard Title	Level	Credits
1532	Operate a tailings disposal system	3	10

1533	Break oversize rock	3	8
1534	Conduct stacker operations	3	5
1535	Treat and dispose of rejects and tailings	3	12
1538	Handle cyanide solids safely in a metallurgical plant	3	7
1539	Handle liquid cyanide safely in a metallurgical plant	3	7
1540	Maintain grinding medium load in a mill	3	8
1541	Neutralise cyanide spillage	3	8
1542	Reline a mill within scope of own responsibility	3	12
1543	Separate material by means of a magnetic separator	3	8
1559	Conduct thickening and clarifying process in a metallurgical plant	3	6

Hydrometallurgical Processing Strand

Compulsory Set A

The following unit standards are required

FIELD: PHYSICAL PLANNING AND CONSTRUCTION
Subfield: Metallurgy
Domain: Hydrometallurgical Processing

Unit No.	Unit Standard Title	Level	Credits
1406	Operate fluid mixing equipment	3	6
1409	Handle reagents safely in a metallurgical plant	2	6

Compulsory Set B

All strand specific requirements (Hydrometallurgical Processing Strand) of Q754 in Metallurgy (Level 2) (Operator Attendant)

Elective Set

A minimum of 25 credits is required

FIELD: PHYSICAL PLANNING AND CONSTRUCTION
Subfield: Metallurgy
Domain: Hydrometallurgical Processing

Unit No.	Unit Standard Title	Level	Credits
1407	Conduct aeration operations	3	6
1408	Conduct digestion operations	3	6
1410	Off-load reagents into a storage facility	3	5

1411	Off-load organic reagents into a storage facility	3	5
1412	Regenerate organic solvent	3	5
1413	Regenerate resin	2	6
1414	Strip base metals from electrode blanks in an electro-winning process	3	3
1415	Neutralise waste streams in a metallurgical plant	2	3
1416	Operate a demineralisation plant	3	10
1417	Recover a mineral from ore by means of flotation	3	10
1418	Reclaim and treat water in a metallurgical plant	3	8
1419	Produce sulphuric acid by means of absorption	2	5
1420	Clean sulphur dioxide gas	2	3
1421	Dry sulphur dioxide gas by means of absorption	2	4
1422	Maintain the catalyst in a sulphur dioxide converter	2	3
1423	Replace stellar filter candles	2	4
1434	Conduct electrometallurgy operations	3	8

Pyrometallurgical Processing Strand

Compulsory Set A

The following unit standards are required

FIELD: PHYSICAL PLANNING AND CONSTRUCTION
Subfield: Metallurgy
Domain: Pyrometallurgical Processing

Unit No.	Unit Standard Title	Level	Credits
1504	Conduct dispatch operations	3	6
1505	Bulk package and store product	3	8
1509	Remove airborne dust by means of a bag filter	2	3

Compulsory Set B

All strand specific requirements (Pyrometallurgical Processing Strand) of Q0754 in Metallurgy (Level 2) (Operator Attendant)

Elective Set

A minimum of 12 credits is required

FIELD: PHYSICAL PLANNING AND CONSTRUCTION
Subfield: Metallurgy
Domain: Pyrometallurgical Processing

Unit No.	Unit Standard Title	Level	Credits
1506	Control water quality in a cooling system	3	6
1507	Handle bulk oxygen safely in a metallurgical plant	2	4
1508	Off-load liquefied gas into a storage facility	3	6
1510	Remove airborne pollutants by means of a scrubber	3	4
1511	Produce metal bar by means of a casting process	3	12

3. Credit recognition and transfer arrangements

Credits for any version of a unit standard with the same identification number will be recognised in the award of this qualification.

4. Special Arrangements

- 4.1** Special Arrangements apply to the accreditation of providers offering learning pathways to and/or undertaking assessments relating to all unit standards listed in this qualification under the Subfield of Metallurgy. These Special Arrangements are available from:

Industry Skills Committee - MQCEGWS
 Rand Street
 Khomasdal
 Namibia
 Telephone number: 061-207 8550
 Facsimile number: 061-207 8551
 Email info@nta.com.na

- 4.2** Special Arrangements may apply to the accreditation of providers offering learning pathways to and/or undertaking assessment relating to all unit standards listed in this qualification in other Subfields and Domains. These Special Arrangements are available from:

Namibia Qualifications Authority
 44 Bismarck St.
 Windhoek
 Namibia
 Telephone number: 061-384116
 Facsimile number: 061-384114
 Email: info@namqa.org

Namibia Training Authority
 Rand Street
 Khomasdal
 Namibia
 Telephone number: 061-207 8550
 Facsimile number: 061-207 8551
 Email info@nta.com.na

- 4.3** Regardless of the above, providers seeking accreditation through the relevant authorities must have or have confirmed access to all equipment and facilities detailed in the Special Notes, Performance Criteria and/or Range Statements in the unit standards that are included in this qualification.

5. Transition arrangements

5.1 Non National Qualifications Framework transition

None.

5.2 National Qualifications Framework transition

This is the first version of this qualification.