

Domain**HYDROMETALLURGICAL PROCESSING****Title:****Conduct electrometallurgy operations****Level: 3****Credits: 8****Purpose**

This unit standard is intended for those who carry out metallurgical processing operations. People holding credit for this unit standard are able to: Plan and prepare for electrometallurgy operations; demonstrate knowledge relating to electrometallurgy operations; monitor electrometallurgy operations; pull and strip plates; shutdown in sequence and/or isolate equipment; and complete duties pertaining to electrometallurgy operations

Special Notes

1. Entry information:

Prerequisite

- 1449 - *Comply with health, safety and environmental rules and regulations pertaining to processing operations*; or demonstrated equivalent knowledge and skills.

2. Assessment evidence may be collected from a real workplace or a simulated workplace in which hydrometallurgy operations are carried out.
3. '*Electrometallurgy*' refers to electrolytic procedures. For assessment purpose competency must be demonstrated in conducting electro-winning or electro-refining operations.
4. Safe working practices include day-to-day observation of safety policies and procedures and compliance with emergency procedures.
5. Specifications refer to any, or all of the following: manufacturer's specifications and recommendations, and workplace specific requirements.
6. Performance of all elements in this unit standard must comply with relevant regulatory, legislative, workplace requirements and/or manufacturers' specifications.
7. Regulations and legislation, including subsequent amendments, relevant to this unit standard may include but are not limited to the following:
 - Labour Act, No. 11, 2007
 - Mineral Act, No. 33, 1992
 - Mine Health and Safety Regulations, 1999
 - Regulations relating to the Health and Safety of employees at work, 1997 and all industry specific regulations, legislations, code of practice, or code of conduct.

Quality Assurance Requirements

This unit standard and others within this subfield may be awarded by institutions which meet the accreditation requirements set by the Namibia Qualifications Authority and the Namibia Training Authority and which comply with the national assessment and moderation requirements. Details of specific accreditation requirements and the national assessment arrangements are available from the Namibia Qualifications Authority and the Namibia Training Authority. All approved unit standards, qualifications and national assessment arrangements are available on the Namibia Training Authority website www.nta.com.na.

Elements and Performance Criteria

Element 1: Plan and prepare for electrometallurgy operations

Performance Criteria

- 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, explained, clarified and applied to the allocated task.
- 1.2 Safety and security requirements, including personal protective clothing and equipment are obtained from the site safety plan, workplace policies and procedures, explained, and applied to the allocated task.
- 1.3 Equipment, tools, lubricants, and accessories selected to carry out tasks are checked for consistency with the requirements of the job, their usability and any faults rectified or reported prior to commencement of work.
- 1.4 Environmental protection requirements are identified from the project environmental management plan and applied to the allocated task.
- 1.5 Work area is inspected and prepared according to workplace procedures.

Element 2: Demonstrate knowledge relating to electrometallurgy operations

Performance Criteria

- 2.1 The principles of electro-winning and electro-refining are explained.
- 2.2 Hazards and risks associated with electro-winning and electro-refining operations are identified through relevant risk assessment procedures.
- 2.3 The actions to be taken, should sub-standard conditions and problems be encountered are explained in terms of operational requirements.

Element 3: Monitor electrometallurgy operations

Performance Criteria

- 3.1 Workplace hazards and associated risks are identified, minimised or eliminated according to workplace procedures and legislative requirements

- 3.2 Data from equipment indicators are monitored, gathered, and interpreted according to workplace procedures.
- 3.3 Solution volume, feed quality, and rate of flow in cells are monitored and adjusted according to workplace requirements.
- 3.4 Cooling system is monitored according to workplace procedures.
- 3.5 Temperature, voltage, and amperage are monitored and maintained.
- 3.6 Emissions are minimised and monitored according to workplace and legislative requirements.
- 3.7 Cell seating and inspections are conducted according to workplace procedure.

Element 4: Pull and strip plates

Performance Criteria

- 4.1 Workplace hazards and associated risks are identified, minimised or eliminated according to workplace procedures and legislative requirements.
- 4.2 Plates are pulled and stripped using appropriate equipment according to workplace procedures.
- 4.3 Stripping products are stacked and dispatched according to workplace procedures. Stripping products are handled safely.
- 4.4 Electrodes are inspected, cleaned and replaced, if necessary, according to workplace procedures.
- 4.5 Cell sludge is removed and disposed of according to workplace procedures and legislative requirements.
- 4.6 Plates are cleaned for reuse according to workplace procedures.

Element 5: Shutdown in sequence and/or isolate equipment

Performance Criteria

- 5.1 Workplace hazards and associated risks are identified, minimised or eliminated according to workplace procedures and legislative requirements.
- 5.2 Shutdown or isolate equipment according to workplace procedures.
- 5.3 Post-shutdown or isolation checks are performed according to workplace procedures.

Element 6: Complete duties pertaining to electrometallurgy operations

Range

Housekeeping may include but is not limited to ensure the work area is ready for next

user; remove work materials to designated locations; correctly identify waste and re-usable material; and remove waste and re-usable materials to designated locations.

Performance Criteria

- 6.1 Task-specific tools, personal protective and safety equipment, are cleaned, maintained and stored for further use according to workplace procedures.
- 6.2 Good housekeeping practices are maintained according to workplace procedures.
- 6.3 Reporting and recording requirements are met according to workplace procedures.
- 6.4 Work related documents are completed according to job requirements and workplace procedures.

Registration Data

Subfield:	Metallurgy
Date first registered:	28 September 2016
Date this version registered:	28 September 2016
Anticipated review:	2021
Body responsible for review:	Namibia Training Authority