

Unit ID: 1427

Domain Title: HYDROMETALLURGICAL PROCESSING  
Control the pH level in a metallurgical  
process

Level: 2

Credits: 4

### 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 controlling the pH level; demonstrate knowledge relating to the controlling of the pH level; conduct pre-operational checks; operate and monitor equipment; carry out routine operator maintenance; and complete duties pertaining to the controlling process.

### 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 processing operations are carried out.
3. Safe working practices include day-to-day observation of safety policies and procedures and compliance with emergency procedures.
4. Glossary of terms:
  - '*pH*' refers to the potential of hydrogen. It is used as a quantitative measure of the acidity or basicity of aqueous or other liquid solutions.
  - '*Controlling the pH level*' includes the process of neutralising solutions for final processing.
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](http://www.nta.com.na).

## **Elements and Performance Criteria**

### **Element 1: Plan and prepare for controlling the pH level**

#### **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, fuel, lubricants, attachments 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 the controlling of the pH level**

#### **Range**

Principal components include pH meters; neutralising system components; auxiliary systems; safety devices; and interlock systems.

#### **Performance Criteria**

- 2.1 The actions and conditions pertaining to a safe, healthy environment in controlling the pH level are described.
- 2.2 The importance of controlling the pH level is described in terms of achieving specified production requirements.
- 2.3 Hazards and associated risks are identified through relevant risk assessment procedures.

- 2.4 The principal components of the controlling and neutralising equipment are identified and their functions described in terms of design and operational requirements.
- 2.5 The colour coding and symbolic signs pertaining to the controlling process are explained.
- 2.6 The communication requirements pertaining to the controlling process are described.
- 2.7 Corrective actions, in case of sub-standard conditions and problems be encountered, are described.

### **Element 3: Conduct pre-operational checks**

#### **Performance Criteria**

- 3.1 Workplace hazards and associated risks are identified, minimised or eliminated according to workplace procedures and legislative requirements.
- 3.2 The controlling system is examined and substandard conditions are reported to appropriate personnel according to workplace procedures.
- 3.3 Start-up and shutdown procedures are conducted according to manufacturer's specifications.

### **Element 4: Operate and monitor equipment**

#### **Performance Criteria**

- 4.1 Workplace hazards and associated risks are identified, minimised or eliminated according to workplace procedures and legislative requirements.
- 4.2 The equipment is operated according to workplace procedures.
- 4.3 The controlling process is monitored and controlled, and optimum production ensured through effective communication according to workplace procedures.
- 4.4 If necessary, corrective and/or reporting actions are taken according to workplace procedures.

### **Element 5: Carry out routine operator maintenance**

#### **Performance Criteria**

- 5.1 Workplace hazards and associated risks are described, identified, minimised or eliminated according to workplace procedures and legislative requirements.
- 5.2 The work area is prepared in readiness for maintenance work to be carried out.

- 5.3 Maintenance, replacement or other maintenance is carried out within scope of responsibility according to manufacturer's specifications and workplace procedures.
- 5.4 System is restored to operational status and relevant documentation completed.

**Element 6: Complete duties pertaining to the controlling process**

**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**

<b>Subfield:</b>	Metallurgy
<b>Date first registered:</b>	28 September 2016
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<b>Body responsible for review:</b>	Namibia Training Authority