

<b>Domain</b>	<b>RIGGING</b>	<b>Unit ID: 989</b>
<b>Title:</b>	<b>Demonstrate knowledge of chemical in processing environment</b>	
<b>Level: 2</b>		<b>Credits: 6</b>

### **Purpose**

This unit standard specifies the competencies required to demonstrate knowledge of chemical in a processing environment. It includes describing the role of sulphurous compounds in the process industry, describing the role of nitrogen bearing (nitrogenous) compounds in the process industry, describing the role of halogens and halides in the process industry and describing the role of organic compounds in the process industry. This unit standard is intended for those who work as general lifting machine operators.

### **Special Notes**

1. Entry information:  
Prerequisite:
  - *937 - Apply safety rules and regulations in lifting machine operations or demonstrated equivalent knowledge and skills.*
2. The typical context of this unit standard includes any processing environment, for example chemical-, minerals- or beverage processing.
3. Assessment evidence may be collected from a real workplace, or an appropriate simulated realistic environment in which lifting machine operations are carried out.
4. All inspection, operation and maintenance procedures associated with the use of tools and equipment shall comply with manufacturers' specifications, guidelines and instructions.
5. Regulations and legislation relevant to this unit standard include the following:
  - Labour Act, No. 11, 2007
  - Regulations relating to the Health and Safety of employees at work, 1997 and all subsequent amendment.

### **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 on [www.nta.com.na](http://www.nta.com.na).

## **Elements and Performance Criteria**

### **Element 1: Describe the role of sulphurous compounds in the process industry**

#### **Range**

Sulphurous compounds include elemental sulphur (S), hydrogen sulphide (H<sub>2</sub>S), sulphur dioxide (SO<sub>2</sub>), sulphur trioxide (SO<sub>3</sub>) and sulphuric acid (H<sub>2</sub>SO<sub>4</sub>).

#### **Performance Criteria**

- 1.1 The occurrence and forms in which sulphurous compounds appear in nature is described based on the major sources of sulphurous compounds used in industry.
- 1.2 The properties and structure of sulphurous compounds are described based on current scientific theory.
- 1.3 Testing for sulphurous compounds is described using simple laboratory equipment.
- 1.4 The occurrence and role of sulphurous compounds in the process industry are described in terms of actual applications.
- 1.5 Reactions of sulphurous compounds with a range of different chemicals are described.
- 1.6 The environmental role of sulphurous compounds is discussed with specific emphasis on the potential risk these compounds pose and the removal methods used in the process industries.

### **Element 2: Describe the role of nitrogen bearing (nitrogenous) compounds in the process industry**

#### **Range**

Nitrogenous compounds include nitrogen gas (N<sub>2</sub>), ammonia (NH<sub>3</sub>), ammonium nitrate (NH<sub>4</sub>NO<sub>3</sub>), ammonium chloride (NH<sub>4</sub>Cl), nitrogen dioxide (NO<sub>2</sub>), nitrous oxide (N<sub>2</sub>O), nitric acid (HNO<sub>3</sub>) and metal nitrates (KNO<sub>3</sub> and NaNO<sub>3</sub>).

### **Performance Criteria**

- 2.1 The occurrence and forms in which nitrogen appear in nature is described based on the major sources of nitrogenous compounds used in industry.
- 2.2 The properties and structure of nitrogenous compounds are described based on current scientific theory.
- 2.3 Testing for nitrogenous compounds is described using simple laboratory equipment.
- 2.4 The occurrence and role of nitrogenous compounds in the process industry are described in terms of actual applications.
- 2.5 Reactions of nitrogenous compounds with a range of different chemicals are described.
- 2.6 The environmental role of nitrogenous compounds is discussed with specific emphasis on the potential risk these compounds pose and the removal methods used in the process industries.

### **Element 3: Describe the role of halogens and halides in the process industry**

#### **Range**

Halogens include fluorine (F), chlorine (Cl), bromine (Br) and iodine (I) and halides include any of the metal salts formed from these halogens.

### **Performance Criteria**

- 3.1 The occurrence and forms in which halogens and halides appear in nature is described based on the major sources of halogens used in industry.
- 3.2 The properties and structure of halogens and halides are described based on current scientific theory.
- 3.3 Testing for halogens and halides is described using simple laboratory equipment.
- 3.4 The occurrence and role of halogens and halides in the process industry are described in terms of actual applications.
- 3.5 Reactions of halogens and halides with a range of different chemicals are described.
- 3.6 The environmental role of halogens and halides is discussed with specific emphasis on the potential risk these compounds pose and the removal methods used in the process industries.

## **Element 4: Describe the role of organic compounds in the process industry**

### **Range**

Organic chemicals include alkanes, alkenes, alkynes, haloalkanes, alcohols, carboxylic acids and esters.

### **Performance Criteria**

- 4.1 The occurrence and forms in which organic chemicals appear in nature is described based on the major sources of organic chemicals used in industry.
- 4.2 The properties and structure of organic chemicals are described based on current scientific theory.
- 4.3 Testing for organic chemicals is described using simple laboratory equipment.
- 4.4 The occurrence and role of organic chemicals in the process industry are described in terms of actual applications.
- 4.5 Reactions of organic chemicals with a range of different chemicals are described.
- 4.6 The environmental role of organic chemicals is discussed with specific emphasis on the potential risk these compounds pose and the removal methods used in the process industries.

### **Registration Data**

<b>Subfield:</b>	Lifting, Shifting and Secure Loads
<b>Date first registered:</b>	27 September 2012
<b>Date this version registered:</b>	27 September 2012
<b>Anticipated review:</b>	2015
<b>Body responsible for review:</b>	Namibia Training Authority