

Unit ID: 1511

Domain  
Title:

**PYROMETALLURGICAL PROCESSING**  
**Produce metal bar by means of a casting  
process**

Level: 3

Credits: 12

**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 the casting process; demonstrate knowledge relating to the casting process; produce bullion, platinum ingots and cast copper bar; control quality of castings; and complete duties pertaining to the casting 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 pyrometallurgy operations are carried out.

3. 'Casting process' refers to producing bullion, cast copper bar, and cast platinum ingots.

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](http://www.nta.com.na).

## **Elements and Performance Criteria**

### **Element 1: Plan and prepare for the casting process**

#### **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, 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 The charge is prepared and loaded in accordance with operational requirements.
- 1.5 Environmental protection requirements are identified from the project environmental management plan and applied to the allocated task.
- 1.6 Work area is inspected and prepared according to workplace procedures.

### **Element 2: Demonstrate knowledge relating to the casting process**

#### **Performance Criteria**

- 2.1 The actions and conditions pertaining to a safe, healthy work environment when casting metal bar are described.
- 2.2 The importance of the casting process is explained in terms of achieving specified production requirements.

- 2.3 The principal components relevant to the casting process are identified and their functions are explained in terms of design and operational requirements.
- 2.4 Hazards and associated risks pertaining to the casting process are identified through relevant risk assessment procedures.
- 2.5 Corrective actions, in case of sub-standards conditions and problems encountered, are described.

### **Element 3: Produce bullion, platinum ingots and cast copper bar**

#### **Performance Criteria**

- 3.1 Workplace hazards and associated risks are identified, minimised or eliminated according to workplace procedures and legislative requirements.
- 3.2 The production system is started according to workplace procedures.
- 3.3 The production system is monitored and controlled according to workplace procedures.
- 3.4 If necessary, corrective and/or reporting actions are taken according to workplace procedures.
- 3.5 The production system is consistent with environmental policy and other specified requirements.

### **Element 4: Control quality of castings**

#### **Performance Criteria**

- 4.1 Workplace hazards and associated risks are identified, minimised or eliminated according to workplace procedures and legislative requirements.
- 4.2 Pre-start quality control equipment checks are carried out.
- 4.3 Castings in their mould are visually inspected for compliance with workplace specifications.
- 4.4 Equipment to remove reject castings is operated according to workplace procedures.
- 4.5 Cooled castings are dressed to allow efficient refining.
- 4.6 Castings are batched and identified according to workplace procedures.

### **Element 5: Complete duties pertaining to the casting 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**

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

## **Registration Data**

<b>Subfield:</b>	Metallurgy
<b>Date first registered:</b>	
<b>Date this version registered:</b>	
<b>Anticipated review:</b>	2021
<b>Body responsible for review:</b>	Namibia Training Authority