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## Overview

This standard is designed to demonstrate your competence in solving problems associated with minerals processing operations. This unit covers recognising the existence of problems, diagnosing their underlying causes, selecting standard solutions and implementing approved solutions to routine problems. You will require a range of knowledge and understanding including: the normal operational parameters of any system you are operating, purpose of approved procedures; identifying the correct solutions to problems; health and safety regulations; effective communication; quality assurance; and operational efficiency. During this work the candidate must take account of the relevant operational requirements and safe working practices.

This standard is applicable to operatives or supervisors of processing operations in the extractives industries who have responsibility for solving identified problems in the processing operation.

## Performance criteria

- You must be able to:*
- P1 identify that a problem has occurred with the plant, equipment or the **processing operations** in your area of responsibility
  - P2 seek information, assistance or support to identify problems and causes
  - P3 identify the problem and its cause
  - P4 estimate the effects of the problem on the processing activity
  - P5 estimate the implications of the problem on other activities and stakeholders
  - P6 develop solutions to the problem
  - P7 agree solutions with **relevant persons**
  - P8 initiate operational contingency plans whilst the problem is addressed
  - P9 implement action to resolve the problem
  - P10 monitor processing operations to check the implemented solution has resolved the problem
  - P11 report problems, solutions and changes to **relevant persons**
  - P12 carry out work activities according to **approved policies, procedures and practices**

## Knowledge and understanding

*You need to know and understand:*

- K1 the operational characteristics of the **processing operations** in your area of responsibility
- K2 the normal operational parameters of the **processing operations** including the manner in which it affects other processes or activities
- K3 the purpose and methods of monitoring the **processing operations**
- K4 the benefits that effective monitoring can bring in particular to quality assurance and the continuous improvement of operational activities and their outcomes
- K5 when the **processing operations** are out of normal operating parameters
- K6 organisational reporting arrangements and **relevant persons** in relation to problems and solutions
- K7 the sources of information, assistance or support in relation to problems, the location and work activity
- K8 the potential consequences of abnormal or stopped operation on other operations and processes, and on health, safety and the environment
- K9 how to identify the correct solution to a range of problems within the processing operations
- K10 the purpose of **approved policies, procedures and practices** and why they need to be followed
- K11 the **approved policies, procedures and practices** in the context of your work activity and your workplace environment

## Additional Information

### Scope/range

- 1 **processing operations:** must provide performance and knowledge evidence in relation to one or more of the following processing operations categories: Crushing/Screening/Washing; Drying; Concrete/Mortar Production; Asphalt/Coated Materials Production; Density/Fluid Separation; Chemical Separation; Forming; Heat Treatment; Sawing/Splitting/Shaping; Packaging; Water Monitoring
- 2 **approved policies, procedures and practices:** legislative, organisational, operational, emergency, health and safety, and environmental as appropriate to the plant or machinery and work activity
- 3 **relevant persons:** supervision; maintenance staff; other operational staff

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**Glossary****Categories of Processing Operations for the E&MPI****1. Crushing/Screening/Washing**

The reduction in size of as extracted material by mechanical crushing equipment (fixed or mobile), grading by size and water washing of that material. This would also include blending or adding water to meet customer specification.

**2. Drying**

The application of heat in any type of oven to remove excess water from the as extracted or processed material

**3. Concrete/Mortar Production**

The production of concrete, mortar and similar materials, by batch (wet batch or dry batch) or continuous production. It is limited to the production of the material, and does not include the subsequent use of the material to make a product, for example a concrete block by casting/forming.

**4. Asphalt/Coated Materials Production**

The production of asphalt and other similar coated materials by any type of batch or continuous production

**5. Density/Fluid Separation**

Includes all processes to increase the purity and quality of the rock or minerals, or to separate different minerals utilising their differing physical properties (e.g. weight, density, shape, solubility), which may be a dry process or with the assistance of a fluid (e.g. air, water, other liquids).

**6. Chemical Separation**

The separation of rocks or minerals utilising their different chemical properties, or differing reactivity, which may involve the introduction of another chemical substance or substances to select the desired product. Note; this may often be combined with Density/fluid separation. This will also include those operations used to release the separated mineral from the separating additive

**7. Forming**

Moulding, casting, forming, compressing or similar operations to produce a solid product of a shape to meeting customer requirements or aid transportation

**8. Heat Treatment**

The application of higher levels and duration of heat to change the physical or chemical properties of the rock or mineral, e.g.s. calcining, cement production.

**9. Sawing/Splitting/Shaping**

The use of specific plant/machinery to change the physical size and/or shape of a piece of (usually) dimensional stone to meet customer requirements

**10. Packaging**

The partial or total enclosure of the rock or mineral, which would normally be done to aid storage or transportation, or to meet customer requirements.

**11. Water Monitoring**

The extraction of a mineral from a mineral body (solid or broken) or a tip/stockpile by the use of a high pressure water jet.

## MPQPO12

### Solve processing problems

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