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Potassium sulphate (sulphate of potash) fertilizer — Specification

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This African Standard was prepared by the ARSO Technical Harmonization Committee Number 5 on Chemistry and Chemical Engineering (ARSO/THC 05).

ARSO Central Secretariat
International House 3rd Floor
P. O. Box 57363 — 00200 City Square
NAIROBI, KENYA

Tel. +254-20-2224561, +254-20-3311641, +254-20-3311608

E-mail: arso@arso-oran.org
Web: www.arso-oran.org

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ARSO Central Secretariat
International House 3rd Floor
P.O. Box 57363 — 00200 City Square
NAIROBI, KENYA

Tel: +254-20-2224561, +254-20-3311641, +254-20-3311608

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1 Scope

This African Standard specifies the requirements, sampling and methods of test for potassium sulphate (sulphate of potash) fertilizer

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

AOAC Official Method 928.02, *Chlorine (water-soluble) in fertilizers*

AOAC Official Method 980.02, *Sulfur in fertilizers — Gravimetric method*

AOAC Official Method 983.04, *Sodium in fertilizers — Atomic absorption spectrophotometric method*

AOAC 2006.03, *Arsenic, cadmium, cobalt, chromium, lead, molybdenum, nickel, and selenium in fertilizers — Microwave digestion and inductively coupled plasma-optical emission spectrometry*

EN 12048, *Solid fertilizers and liming materials — Determination of moisture content — Gravimetric method by drying at 105±2 °C*

EN 15477, *Fertilizers — Determination of the water-soluble potassium content*

EN 15925, *Fertilizers — Extraction of total sulfur present in various forms*

EN 16032, *Fertilizers — Extraction and determination of elemental sulfur*

EN 16195, *Fertilizers — Determination of chlorides in the absence of organic material*

ISO 7409, *Fertilizers — Marking — Presentation and declarations*

ISO 8157, *Fertilizers and soil conditioners — Vocabulary*

ISO 8397, *Solid fertilizers and soil conditioners — Test sieving*

ISO 14820-1, *Fertilizers and liming materials — Sampling and sample preparation — Part 1: Sampling*

ISO 14820-2, *Fertilizers and liming materials — Sampling and sample preparation — Part 2: Sample preparation*

ISO 17318, *Fertilizers and soil conditioners — Determination of arsenic, cadmium, chromium, lead and mercury contents*

ISO 17319, *Fertilizers and soil conditioners — Determination of water-soluble potassium content — Potassium tetraphenylborate gravimetric method*

3 Terms and definitions

For the purpose of this standard, the terms and definitions in ISO 8157 apply.

4 Requirements

4.1 General description

The fertilizer shall be in the form of free flowing crystalline powder and free from visible contamination.

4.2 Physical requirements

When tested accordance with ISO 8397,the particle size shall be such that not less than 65 % of the material shall pass through 1.7 mm IS sieve and be retained on 0.25 mm IS sieve.

4.3 Chemical requirements

The fertilizer shall comply with requirements/limits given in Table 1 when tested according to the methods specified therein.

Table 1— Chemical requirements

Sl. No.	Characteristic	Requirement	Test method
i)	Potash content (as K_2O), % m/m, min.	50.0	ISO 17319/ EN 15477
ii)	Sulphur as S, % m/m, min.	17.5	AOAC 980.02/ EN 16032/ EN 15925
iii)	Sodium chloride (as NaCl), % m/m, max.	2.0	AOAC 983.04
iv)	Total Chloride as Cl, %m/m, max	2.5	AOAC 928.02/ EN 16195
iv)	Moisture, % m/m, max.	1.5	EN 12048

4.4 Heavy metal contaminants

The heavy metal contaminants, if present, shall not exceed the limits stipulated in Table 2.

Table 2 — Heavy metal contaminants

SNo.	Parameter	Maximum limit, mg/kg	Test method
i)	Arsenic, As	10.0	ISO 17318
ii)	Cadmium, Cd	7.0	ISO 17318
iii)	Mercury, Hg	0.1	ISO 17318
iv)	Selenium, Se	1.0	AOAC 2006.03
v)	Lead, Pb	30.0	ISO 17318
vi)	Chromium, Cr, max.	50.0	ISO 17318

5 Sampling

Sampling shall be carried out in accordance with ISO 14820-1.

6 Tests

6.1 Methods of test

Samples of the fertilizer shall be prepared in accordance with ISO 14820-2 and tested in accordance with the methods of test indicated in Table 1 and Table 2.

6.2 Inspection

From the bulk samples obtained from ISO 14820-1, inspect the lot for the characteristics relating to the packing and marking of the product.

7 Compliance

The lot shall be deemed to comply with the standard if after inspection and testing it complies with the requirements of this standard.

8 Packaging and labelling

8.1 Packaging

The fertiliser shall be packed in clean, non-defective and strong containers. The material for which the container is made shall be such as to protect the contents from moisture and also not lead to easy rupture during handling, transportation and storage.

8.2 Labelling

8.2.1 Each container of the fertiliser shall bear a label in indelible marking in accordance with ISO 7409, the Globally Harmonized System (GHS) and with the following particulars:

a) name, address and physical location of the manufacturer/packer/importer;

b) type of the product as potassium sulphate fertilizer ;

c brand name

d) the minimum potash content, as K_2O, in percentage by mass;

d) the net weight of the fertilizer in the package;

e) handling instructions;

f) storage instructions;

g) manufacture and best before date;

h) batch/lot number;

i) Country of origin.

j) Instructions for use

8.2.2 Bulk containers

Where the fertilizer is distributed in bulk, the marking information shall accompany the delivery notice to the purchaser.

9 Certificate of analysis

A certificate of analysis stating the minimum percentage levels of plant nutrient elements shall accompany every lot or consignment of the fertilizer.

10 Material safety

Each container must be accompanied by a Material Safety Data Sheet (MSDS) and Technical Data Sheet (TDS).

