

**KENYA STANDARD**

**KS 158: 2018**

# **Solid compound fertilizer — Specification**

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## **REVISION OF KENYA STANDARDS**

In order to keep abreast of progress in industry, Kenya Standards shall be regularly reviewed. Suggestions for improvements to published standards, addressed to the Managing Director, Kenya Bureau of Standards, are welcome.

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**KENYA STANDARD**

**KS 158:2018**

ICS 65.080

# **Solid compound fertilizer — Specification**

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## Foreword

This Fifth edition of KS 158 was prepared by the Technical Committee on Fertilizers and soil conditioners under the Standards projects Committee and it is in accordance with the procedures of the Kenya Bureau of Standards.

During the revision of this standard, special attention was paid to the environmental aspect associated with fertilizer raw-materials. Thus setting limits for heavy metal contamination of Arsenic (As), Cadmium (Cd), Mercury (Hg), Selenium (Se), Lead (Pb) and Chromium (Cr). The tolerances for declared primary nutrients have been revised to safeguard the interests of the user.

Recent Association of Official Analytical Chemists (AOAC) methods of analysis were adopted and limits for primary nutrients guarantee have been set.

During the revision of this standard, reference was made to the following document:

*FAO Mineral fertilizer Specifications 2012*

EU Limits on cadmium

Indian fertilizers specifications: tolerances for declared primary nutrients

Acknowledgement is hereby made for assistance derived from this source.

## Solid compound fertilizer — Specification

### 1 Scope

This Kenya Standard specifies the requirements, and prescribes the methods of sampling and tests for solid compound fertilizers.

### 2. Normative references

KS ISO 8157: 2015: Fertilizers Vocabulary

### 3. Definitions

For the purpose of this standard the definitions in KS ISO 8157:2015 shall apply

## 4 Requirements

### 4.1 Description

The fertilizer shall be homogenous and free-flowing, in the form of granules, pellets, prills or crystals.

### 4.2. General requirements

#### Physical

- a) The fertilizer shall be free from foreign matter. It shall be free from dust and lumps
- b) Not less than 90% of the material shall pass through 4 mm IS sieve and be retained on 1 mm IS sieve. Not more than 5% shall be below 1 mm size

### 4.3 Chemical

A compound fertilizer shall contain two or more of the following primary plant nutrient elements intended for fertilizing of crops: nitrogen (N), phosphorus (P) and potassium (K). The lower limit of the declared value of any of the primary nutrients shall comply with the tolerances stated in the table 1 below

SL NO	nutrient content	tolerances in units
i	less than 15	0.5
ii	15 to 21	0.6
iii	more than 21	0.7

Besides the primary nutrient elements, the fertilizer may also contain one or more of the following elements: Boron, Calcium, Cobalt, Copper, Iron, Magnesium, Manganese, Molybdenum, Sulphur and Zinc, which, when present for the purpose of fertilizing of crops and mentioned in any form or manner, shall be guaranteed on the elemental basis. Sources of the elements guaranteed and proof of availability shall be provided upon request. The elements shall be mentioned and guaranteed if their percentage values by mass are equal to or more than the values shown in Table 2

**Table 2— Minimum percentage for guarantee**

SL NO	Element	%
i)	Boron (B)	0.02
ii)	Calcium (Ca)	1.00
iii)	Cobalt (Co)	0.0005
iv)	Copper (Cu)	0.05
v)	Iron (Fe)	0.10
vi)	Magnesium (Mg)	0.60
vii)	Manganese (Mn)	0.050
viii)	Molybdenum (Mo)	0.0005
ix)	Sulphur (S)	1.00
x)	Zinc (Zn)	0.05

**4.4** The moisture content shall be not more than 1.5 % m/m.

#### **45 pH Value**

The pH value of a 10 % (m/v) aqueous solution, of the fertilizer, shall be not less than 4.5, when tested in accordance with appropriate method(AOAC method for pH)

#### **4.6 Heavy metal contaminants**

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

**Table 3 — Heavy metal contaminants limits**

SL NO	Parameter	Limits in ppm	Test method
i)	Arsenic, As, max.	20.0	AOAC
ii)	Cadmium, Cd, max.	15.0	AOAC
iii)	Mercury, Hg, max.	0.1	AOAC
iv)	Selenium, Se, max.	1.0	AOAC

v)	Lead, Pb, max.	30.0	AOAC
VII	Chromium	500	AOAC

### 3 Packaging and marking /labelling

#### 3.1 Packaging

The fertilizer shall be packaged in materials that protect the product from physical, chemical and moisture contamination

#### 3.2. Marking /Labelling

The following information shall be clearly and indelibly marked/labelled on each package.

- a) Name, address and physical location of manufacturer/packer/importer;
- b) name of the fertilizer, i.e. "Compound Fertilizer";
- c) guaranteed percentage by mass of each of the primary plant nutrients (NPK);
- d) name and percentage by mass of any other guaranteed element present;
- e) date of manufacture, expiry date and batch/lot number;
- f) the form in which nutrient is present;
- g) the percentage of water-soluble or available phosphates;
- h) storage and handling instructions;
- i) the net weight of the fertilizer in the package;
- j) country of origin;
- k) A warning or cautionary statement on the label for any product that contains 0.3 % or more of boron in a water-soluble form. This statement shall carry the word 'WARNING' or 'CAUTION' conspicuously displayed, shall state the crop(s) for which the fertilizer is to be used on and state that the use of the fertilizer on any, other than those recommended may result in serious injury to the crop(s). Fertilizers containing 0.001 % or more of molybdenum also require a warning statement on the label. This shall include the word 'WARNING' or 'CAUTION' and the statement that the application of fertilizers containing molybdenum may result in foliage crops containing levels of molybdenum which are toxic to ruminant animals.

### 4 Certificate of analysis

Each consignment shall be accompanied by a certificate of analysis.

## **5 Sampling**

This shall be done as per ISO standards ISO 8633 and ISO 8634-on sampling of fertilizers.

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