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Draft Tanzania Standard

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**Fertilizer - Triple Superphosphate – Specification**

DRAFT FOR STAKEHOLDERS' COMMENTS ONLY

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**TANZANIA BUREAU OF STANDARD**

# Fertilizer - Triple Superphosphate – Specification

(Draft for comments only)

## 0 FOREWORD

Phosphorus as an element in plants is used to improve crop quality, to build resistance to diseases, root development and other functions. Thus, its inclusion is considered necessary in the formulation of several commercial fertilizer-mix. This element is supplied in the form of superphosphate and phosphoric acid expressed as P<sub>2</sub>O<sub>5</sub> in fertilizer-mix or phosphorus as P.

This Tanzania Standard is intended to guide manufacturers, importers, traders, farmers, regulatory authorities and other users to produce and select Triple Superphosphate fertilizer (TSP) of desirable quality.

In the preparation of this Tanzania Standard assistance was drawn from manufacturer's specifications.

In reporting the results of a test or analysis, made in accordance with this Tanzania Standard, if the final value observed or calculated is to be rounded off, it shall be done in accordance with TZS 4.

## 1 SCOPE

This Tanzania standard prescribes the requirements and methods of sampling and test for Triple Superphosphate (TSP) fertilizer.

## 2 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.

*TZS 4 Rounding off numerical values*

*TZS 156 Fertilizers and Soil Conditioners – Vocabulary*

*TZS 159 Fertilizers – Methods of Sampling*

*TZS 780 Code of Practice for Handling of Fertilizers*

*TZS 782 Fertilizers - Methods for Determination of Heavy Metal Contaminants*

*TZS 990 Solid fertilizers – Determination of Moisture Content*

*TZS 1105 Fertilizers – Extraction of Water-Soluble Phosphate*

*TZS1108 Fertilizers- Determination of Phosphorous Content- Quinolinephosphomolybdate-Gravimetric method*

*TZS 1014 Solid Fertilizers and Soil Conditioners – Test sieving*

*TZS 1283 Fertilizers – Methods for Determination of Free Acidity*

## 3 TERMS AND DEFINITIONS

For the purpose of this standard, terms and definitions given in TZS 156 shall apply.

## 4.0 REQUIREMENTS

### 4.1 Physical

The fertilizer shall be free from excessive lumps and shall not form hard cake on storage. The fertilizer shall be of uniform colour.

When tested by TZS 1014, not less than 90 per cent by weight of the material shall be of particles in the size range of 1 mm to 4 mm for prills or 2mm to 5mm for granular form.

### 4.2 Chemical

The Triple Superphosphate fertilizer shall comply with the requirements given in Table 1.

**Table 1 - Requirements for Triple Superphosphate fertilizer**

Characteristic	Requirement	Methods of test
Total phosphates, as P <sub>2</sub> O <sub>5</sub> , per cent by mass, <i>min</i>	46.	TZS1108
Water soluble phosphates, as P <sub>2</sub> O <sub>5</sub> , per cent by mass, <i>min</i>	42.5	TZS 1105
Free phosphoric acid as P <sub>2</sub> O <sub>5</sub> , per cent by mass <i>max.</i>	3.0	TZS 1283
Moisture, percent by mass, <i>max.</i>	5.0	TZS 990

## 5. HEAVY METAL CONTAMINANTS

Heavy metal contaminants in the fertilizer shall not exceed the limits given in Table 2 when determined by the methods described in TZS 782.

**Table 2 – Requirements for heavy metal contaminants**

Element	Requirement
Arsenic, <i>mg/kg, max</i>	20
Cadmium, <i>mg/kg, max</i>	7
Mercury, <i>mg/kg, max</i>	0.1
Selenium, <i>mg/kg, max</i>	1
Lead, <i>mg/kg, max</i>	30
Chromium, <i>mg/kg, max</i>	500

## 6. STORAGE AND TRANSPORTATION

The fertilizer shall be stored and transported as prescribed in TZS 780.

## **7 SAMPLING AND TESTING**

### **7.1 Sampling**

Sampling of fertilizer shall be carried out as prescribed in TZS 159.

### **7.2 Testing**

Testing of the fertilizer shall be done as prescribed in the methods of analysis indicated in respective standards.

## **8.0 PACKAGING AND LABELLING**

### **8.1 Packaging**

The fertilizer shall be packed in UV stabilized woven polypropylene (wpp) bags with 1 ply polyethylene (pe) inner lining. At the bottom of the bag, the woven fabric and the pe shall be hemmed then folded and secured together in lock stitches. At the top the inner lining and outer bag, shall be hemmed together. The bag shall be securely closed in lock stitches and without any opening. The stitching thread must be acid and heat resistant and of sufficient strength to hold the package secure and withstand multiple stages of handling. The outer wpp fabric shall measure not less than 10 x10 mesh weave of minimum 900 denier. The inner pe lining shall be of minimum of 70 microns thickness.

It is recommended that fertilizer is packed in 50 kg, 25kg, 5kg, 2kg, 1kg or as agreed to between the purchaser and supplier without comprising the packaging requirements

### **8.2 Labelling**

The bags shall be labeled in either Kiswahili or Kiswahili and English with the following information: -

- a) name of the fertilizer i.e. "Triple Superphosphate (TSP) fertilizer;
- b) name and address of the manufacturer and importer;
- c) nutrient content;
- d) net content by mass in kg;
- e) handling instructions – including the words "Use No hooks";
- f) production date and expiry date;
- g) country of origin and
- h) batch number.

### **8.3 The containers/bags shall also be marked with the TBS Standards Mark of Quality.**

NOTE – The TBS Standards Mark of Quality may be used by the manufacturers only under licence from TBS. Particulars of conditions under which the licences are granted, may be obtained from TBS.