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Draft Tanzania Standard

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**Fertilizers – Mono-Ammonium Phosphate and Di-Ammonium Phosphate (MAP & DAP) – Specification**

DRAFT FOR STAKEHOLDERS' COMMENTS ONLY

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**TANZANIA BUREAU OF STANDARD**

**Fertilizers – Mono-Ammonium Phosphate and Di-Ammonium Phosphate**

**(MAP & DAP) – Specification****(Draft for comments only)****0 FOREWORD**

Mono-Ammonium Phosphate (MAP) and Di-Ammonium Phosphate (DAP) fertilizers are among the major sources of phosphorus, which is an essential nutrient for the growth and development of plants.

This Tanzania Standard is aimed at guiding the manufacturers, importers, traders, regulatory authorities, farmers and other users in producing and selecting fertilizers of good quality.

In the preparation of this Tanzania Standard, assistance was derived from manufacturers' 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 requirements, methods of sampling and tests for Mono-Ammonium Phosphate and Di-Ammonium Phosphate (MAP & DAP) fertilizers.

**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 Fertilizers – Code of Practice for Handling*

*TZS 782 Fertilizer - Methods for determination of heavy metal contaminants*

*TZS 990 Solid fertilizers – Determination of moisture content*

*TZS 1014 Solid fertilizers and soil conditioners – Test sieving*

*TZS 1015 Fertilizers – Determination of total nitrogen content – Titrimetric method after distillation*

*TZS 1016 Fertilizers – Determination of ammoniacal nitrogen content – Titrimetric method after distillation*

*TZS 1105 Fertilizers – Extraction of water-soluble phosphate*

*TZS1108 Fertilizers- Determination of phosphorous content- Quinolinephosphomolybdate- Gravimetric method*

**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

MAP and DAP fertilizers shall be in the form of crystals or granules; the fertilizers shall be free flowing and free from any foreign matter. The particle size, when tested by TZS 1014, shall be such that not less than 90% by mass of the material shall pass through 4 mm sieve and be retained on 1 mm sieve. Not more than 5% shall be below 1 mm sieve. The colour of the fertilizers shall be uniform.

### 4.2 Chemical

The MAP and DAP fertilizers shall comply with the requirements given in Table 1.

**Table 1 – Chemical requirements for Mono-Ammonium Phosphate (MAP) and Di – Ammonium Phosphate (DAP) fertilizers**

| Characteristic   | Requirement |     | Test Method |
|--|-------------|-----|-------------|
|  | MAP         | DAP |             |
| Ammoniacal nitrogen, as N, percent by mass, <i>min</i>                                   | 11          | 18  | TZS 1016    |
| Total phosphates, as P <sub>2</sub> O <sub>5</sub> , percent by mass, <i>min</i>         | 48          | 46  | TZS1108     |
| Water soluble phosphates, as P <sub>2</sub> O <sub>5</sub> , percent by mass, <i>min</i> | 45          | 41  | TZS 1105    |
| Moisture content, percent by mass, <i>max</i>  | 1.5         | 1.5 | TZS 990     |

## 5. HEAVY METAL CONTAMINANTS

Heavy metal contaminants in the fertilizers shall not exceed the limits given in Table 2 when determined by 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.

## 7.0 SAMPLING AND TESTING

### 7.1 Sampling

Sampling of the 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 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 compromising the packaging requirements.

### 8.2 Labelling

The container shall be labelled either Kiswahili or Kiswahili and English with the following information: -

- a) Name of the fertilizer i.e. Mono-Ammonium Phosphate (MAP) or Di-Ammonium Phosphate (DAP) fertilizer;
- b) Name and address of the manufacturer and importer;
- c) Net content by mass in kg;
- d) Nutrient content;
- 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.