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**Monoammonium phosphate (MAP) and
diammonium phosphate (DAP) —
Specification**

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Contents		Page
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Requirements	2
4.1	General requirements	2
4.2	Specific requirements	2
5	Packaging and labelling	3
5.1	Packaging	3
5.2	Labelling	3
6	Sampling	3

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Foreword

Rwanda Standards are prepared by Technical Committees and approved by Rwanda Standards Board (RSB) Board of Directors in accordance with the procedures of RSB, in compliance with Annex 3 of the WTO/TBT agreement on the preparation, adoption and application of standards.

The main task of technical committees is to prepare national standards. Final Draft Rwanda Standards adopted by Technical committees are ratified by members of RSB Board of Directors for publication and gazettment as Rwanda Standards.

DRS 192 was prepared by Technical Committee RSB/TC 007, *Agrochemicals*

In the preparation of this standard, reference was made to the following standard:

FDARS 1485: Monommonium phosphate (MAP) and diammonium phosphate (DAP) fertilizers —
Specification

The assistance derived from the above source is hereby acknowledged with thanks.

Committee membership

The following organizations were represented on the Technical Committee on *Agrochemicals* (RSB/TC 007) in the preparation of this standard.

One Acre Fund - TUBURA

Ministry of Environment (MoE)

University of Rwanda/College of Agriculture and Veterinary Medicine (UR/CAVM)

University of Rwanda/College of Sciences and Technology (UR/CST)

Rwanda Inspectorate, Competition and Consumer Protection Authority (RICA)

Star Construction and Consultancy (SCC) Ltd

Rwanda Standards Board (RSB) – Secretariat

Monoammonium phosphate (MAP) and Diammonium phosphate (DAP) fertilizers — Specification

1 Scope

This Draft Rwanda Standard specifies the requirements, sampling and test methods for monoammonium phosphate (MAP) and diammonium phosphate (DAP) fertilizers.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 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 14888, *Fertilizers and liming materials — Determination of cadmium content*

ISO 5315, *Fertilizers — Determination of total nitrogen content — Titrimetric method after distillation*

ISO 5316, *Fertilizers — Extraction of water-soluble phosphates*

ISO 6598, *Fertilizers — Determination of phosphorus content — Quinoline phosphomolybdate gravimetric method*

ISO 8157, *Fertilizers and soil conditioners — Vocabulary*

ISO 8633, *Solid fertilizers — Simple sampling method for small lots*

ISO 8634, *Solid fertilizers — Sampling plan for the evaluation of a large delivery*

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

3 Terms and definitions

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

4 Requirements

4.1 General requirements

4.1.1 The fertilizer shall be made of water soluble Monoammonium Hydrogen Phosphate $[(\text{NH}_4)\text{H}_2\text{PO}_4]$ or Diammonium Hydrogen Phosphate $[(\text{NH}_4)_2\text{HPO}_4]$.

4.1.2 The fertilizer shall be free flowing, granular and free from any foreign matter.

4.1.3 The fertilizer shall not be caked.

4.1.4 When test sieved in accordance with ISO 8397, not less than 90% 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 size.

4.2 Specific requirements

4.2.1 The fertilizer shall comply with the requirements given in Table 1 when tested against the methods described.

Table 1 — Chemical requirements of monoammonium phosphate (MAP) and diammonium phosphate (DAP) fertilizers

Sl. No.	Characteristic	Requirement % by mass		Test method
		MAP	DAP	
i)	Total nitrogen, min.	11	18	ISO 5315
ii)	Water soluble phosphates as P_2O_5 , min.	44	41	ISO 5316
iii)	Available phosphates, as P_2O_5 , min.	50	46	ISO 6598
iv)	Moisture, max.	1.5	1.5	EN 12048

4.2.2 The fertilizer shall be free from harmful substance and free from level of radioactivity that is harmful to human life. Heavy metals shall not form part of the composition of the fertilizer; if present as contaminants, heavy metals shall not exceed the maximum limits given in Table 2.

Table 2 — Heavy metal contaminant limits of MAP and DAP fertilizer

S/N	Parameter	Limits, mg/kg	Test method
i)	Arsenic, As, max.	40	AOAC 2006.03/ ISO 17318
ii)	Cadmium, Cd, max.	30	AOAC 2006.03/ ISO 17318
iii)	Mercury, Hg, max.	0.1	AOAC 2006.03/ ISO 17318
iv)	Selenium, Se, max.	1.0	AOAC 2006.03
v)	Lead, Pb, max.	80.0	AOAC 2006.03/ ISO 17318
vi)	Nickel	120	AOAC 2006.03/ ISO 17318
vii)	Chromium, Cr Max.	500	AOAC 2006.03/ ISO 17318

5 Packaging and labelling

5.1 Packaging

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

5.2 Labelling

5.2.1 Each package of the fertiliser shall be legibly and indelibly marked in accordance with ISO 7409 and the following particulars:

- a) name and physical address of manufacturer/packer/importer;
- b) name of the fertilizer, namely MAP or DAP fertilizer;
- c) guaranteed percentages of nutrient element nitrogen and available phosphates, i.e., $N - P_2O_5 - K_2O$;
- d) date of manufacture;
- e) expiry date or best before date;
- f) the net weight of the fertilizer in the package;
- g) lot number or batch number;
- h) handling and storage instructions;
- i) Country of origin.

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

6 Sampling

Sampling of the bagged fertilizers or the fertilizer in bulk shall be carried out in accordance with ISO 14820 (Parts 1 and 2).

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Bibliography

- [1] ISO/IEC Directives, Part 2, *Rules for the structure and drafting of International Standards*, 2016

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