

DRAFT UGANDA STANDARD

Second Edition
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Ammonium sulphate nitrate fertilizer — Specification



Reference number
DUS 757

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Foreword

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The work of preparing Uganda Standards is carried out through Technical Committees. A Technical Committee is established to deliberate on standards in a given field or area and consists of key stakeholders including government, academia, consumer groups, private sector and other interested parties.

Draft Uganda Standards adopted by the Technical Committee are widely circulated to stakeholders and the general public for comments. The committee reviews the comments before recommending the draft standards for approval and declaration as Uganda Standards by the National Standards Council.

The committee responsible for this document is Technical Committee UNBS/TC 2, *Food and agriculture*, Subcommittee SC 20, *Agrochemicals and veterinary drugs*.

This second edition cancels and replaces the first edition (US 757:2007), which has been technically revised.

Ammonium sulphate nitrate fertilizer — Specification

1 Scope

This Draft Uganda Standard specifies requirements, sampling and test methods for ammonium sulphate nitrate (ASN) fertilizer.

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 950.01, *Water (Total) in fertilizers*

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

ISO 8157, *Fertilizers and soil conditioners—Vocabulary*

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

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

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

ISO 15604, *Fertilizers— Determination of different forms of nitrogen in the same sample, containing nitrogen as nitric, ammoniacal, urea and cyanamide nitrogen*

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

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Requirements

4.1 General requirements

- a) The material shall be free-flowing and in a form suitably coated so as to retard caking and moisture absorption.

- b) It shall be in the form of uniform granules or crystals, free from any foreign matter.
- c) Particle size: 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 when tested in accordance with ISO 8397.

4.2 Specific requirements

The material shall consist essentially of a double salt of ammonium sulphate and ammonium nitrate. It shall also comply with the requirements given in Table 1 when tested in accordance with the methods specified therein

Table 1 — Chemical requirements

Sn	parameter	Requirements, % by mass	Test method
i.	Nitrate nitrogen, as N	26.0 max	ISO 15604
ii.	Nitrogen content, as N	7.0 max	ISO 5315
iii.	Free acidity, as HNO ₃	0.015 max	Annex A
iv.	Moisture content	1.0 max	AOAC 950.01

4.3 Heavy metal contamination

When tested in accordance with the methods specified therein, the heavy metal contaminants shall not exceed those indicated in Table 2

Table 2 — Limits for heavy metal contaminants

Metal	Maximum limits, mg/kg	Test methods
Arsenic	50	ISO 17318
Cadmium	20	
Mercury	5	
Lead	30	
Chromium	150	

5 Packaging

Ammonium sulphate nitrate fertilizer shall be packaged in materials that ensure the product integrity and quality and protect it against physical damage, chemical and moisture contamination.

6 Weights and Measures regulations

The fill of the package shall comply with the weights and measures act

7 Labelling

The following information shall be clearly and indelibly marked in English on each package or container:

- a) name of the fertilizer as “Ammonium sulphate nitrate”;
- b) name, address and physical location of manufacturer/packer/importer;
- c) chemical composition of the fertilizer;
- d) nitrogen content of the material as a percentage by weight;
- e) date of manufacture;
- f) expiry date;
- g) batch/lot number;
- h) the net weight of the fertilizer in the package; in metric units;
- i) storage and handling instructions;
- j) risk warning;
- k) instructions for use;
- l) disposal instructions and;
- m) country of origin.

8 Sampling

Sampling shall be done in accordance with ISO 8633 and ISO 8634

Annex A (normative)

Determination of free acidity

A.1 Reagents

A.1.1 Standard sodium hydroxide solution, 0.02 N

A.1.2 **Methyl red – methylene blue mixed indicator**, prepared by mixing equal volumes of 0.2 % methyl red solution in alcohol and 0.1 % methylene blue solution in alcohol

A.2 Procedure

Weigh accurately 10 g of the material and dissolve in 100 mL of neutral water at room temperature in a beaker or conical flask. Add 2 drops to 3 drops of the mixed indicator solution (C 1.2) and titrate with the sodium hydroxide solution (C.1.1) until the colour changes from violet to green.

A.3 Calculations

Free acidity, expressed as a percentage by mass of:

$$\text{HNO}_3 = \frac{6.8VT}{m}$$

where,

V is the volume, in millilitres, of the standard sodium hydroxide solution used in the titration;

T is the exact normality, of the sodium hydroxide solution, and

m is the mass, in grams, of the test portion.

Bibliography

- [1] US 758:2007, *Ammonium sulphate nitrate fertilizer — Specification*
- [2] FAO Mineral fertilizer Specifications 2010
- [3] Agricultural Chemicals (Control) Act, 2006 (Act No.1 of 2007)
- [4] The Fertilizer Control Regulations, 2010

DRAFT UGANDA STANDARD FOR PUBLIC REVIEW

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