

DRAFT UGANDA STANDARD

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Inorganic foliar fertilizer — Specification

PUBLIC REVIEW DRAFT



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Foreword

Uganda National Bureau of Standards (UNBS) is a parastatal under the Ministry of Trade, Industry and Cooperatives established under Cap 327, of the Laws of Uganda, as amended. UNBS is mandated to coordinate the elaboration of standards and is

- (a) a member of International Organisation for Standardisation (ISO) and
- (b) a contact point for the WHO/FAO Codex Alimentarius Commission on Food Standards, and
- (c) the National Enquiry Point on TBT Agreement of the World Trade Organisation (WTO).

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 representatives of consumers, traders, academicians, manufacturers, government and other stakeholders.

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.

This Draft Uganda Standard has been developed as a result of a need to provide guidance to industry in production and regulation of Inorganic fertilizers.

This Draft Uganda Standard was developed by the UNBS/TC 2/SC 20 – Agrochemicals and veterinary drugs Sub Committee under the Food and Agriculture standards Technical Committee, UNBS/TC 2.

PUBLIC REVIEW DRAFT

Inorganic foliar fertilizer — Specification

1 Scope

This Draft Uganda Standard specifies the requirements, methods of sampling and tests for inorganic foliar fertilizers.

2 Normative 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.

AOAC 928.02: *Chlorine (Water-soluble) in fertilizers*

AOAC 965.11: *Cobalt in fertilizers*

AOAC 975.01: *Copper in fertilizers.*

AOAC 975.02: *Zinc in fertilizers*

AOAC 980.01, *Iron in fertilizers.*

AOAC 980.02, *Sulfur in fertilizers.*

AOAC 982.01: *Boron (Acid- and Water-Soluble) in Fertilizers*

AOAC 983.04: *Sodium in fertilizers*

AOAC 984.01, *Magnesium (Acid-soluble) in fertilizers*

AOAC 2006.03: *Arsenic, Cadmium, Cobalt, Chromium, Lead, Molybdenum, Nickel, and selenium in fertilizers. Microwave digestion and inductively coupled plasma-optical emission spectrometry*

ISO 7888, *Water quality—Determination of electrical conductivity*

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*

3 Terms and definitions

For the purposes of this standard, in addition to the terms and definitions provided in ISO 8157 the following terms and definitions shall apply.

3.1 foliar fertilizer

a liquid, water soluble, fertilizer applied to a plant's foliage in a fine spray so that the plant can absorb the nutrients through its leaves".

3.2 electrical conductivity

a measure of the total soluble salts, or the soluble nutrients (or ions) present in a fertilizer

4 Requirements**4.1 Physical**

The material shall be an aqueous solution or if in solid form it shall be completely soluble in water.

4.2 Chemical**4.2.1 Nutrient guarantees**

Inorganic foliar fertilizers shall conform to the minimum limits for the following elements, if declared

Table 1 — Minimum Concentration for Secondary and Micro Nutrients

SN	Element	Minimum conc. %	Test method
i)	Boron (B)	0.02	AOAC 982.01
ii)	Calcium (Ca)	1.00	AOAC 945.04
iii)	Cobalt (Co)	0.0005	AOAC 965.11
iv)	Copper (Cu)	0.05	AOAC 975.01
v)	Iron (Fe)	0.10	AOAC 980.01
vi)	Magnesium (Mg)	0.60	AOAC 984.01
vii)	Manganese (Mn)	0.05	AOAC 940.02
viii)	Molybdenum (Mo)	0.0005	AOAC 2006.03
ix)	Sulphur (S)	1.00	AOAC 980.02
x)	Zinc (Zn)	0.05	AOAC 928.02
Xi)	Nickel (Ni)	0.0010	AOAC 975.02
Xii)	Sodium (Na)	0.1000	AOAC 983.04

4.2.2 Electrical Conductivity

Inorganic foliar fertilizers shall conform to the Maximum limit of 10 mS/cm for Electrical Conductivity (0.1% solution, 25°C), when tested in accordance with ISO 7888

4.3 Chelating compounds

If chelating agents such as EDTA, NTA and IDHA are used, they shall be stated

5 Heavy metal contaminants

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

Table 2 — Heavy metal contaminants limits

Sn	Parameter	Limits in mg/kg	Test method
i)	Arsenic, As, max.	20.0	AOAC 2006.03
ii)	Cadmium, Cd, max.	7.0	
iii)	Mercury, Hg, max.	0.1	
iv)	Lead, Pb, max.	30.0	

6 Packaging

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

7 Weights and measures regulations

The fill of the package shall comply with the weight and measures regulations

8 Labelling

The following information shall be clearly and indelibly marked in English on each package.

- a) name of product as “Inorganic foliar fertilizer”;
- b) name, address and physical location of manufacturer/packer/importer;
- c) guaranteed percentage by mass of each of the nutrients;
- d) date of manufacture;
- e) expiry date;
- f) batch/lot number;
- g) the form in which nutrient is present;
- h) Stage of crop growth to be applied;
- i) name of the chelating material used in case of trace elements;
- j) storage instructions;
- k) the net weight of the fertilizer in the package in metric units;
- l) country of origin;
- m) Instructions for use and
- n) disposal instructions.

9 Sampling

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

PUBLIC REVIEW DRAFT

Bibliography

- [1] KS 2228:2015 Foliar fertilizer (inorganic) — Specification

PUBLIC REVIEW DRAFT

PUBLIC REVIEW DRAFT

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