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## Organic Fertilizer — Specification

PUBLIC REVIEW DRAFT



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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 co-ordinate 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 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.

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

# Organic Fertilizer— Specification

## 1 Scope

This Draft Uganda Standard specifies requirements and methods of sampling and test for organic 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.

The Fertilizer Control Regulations, 2010

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 10390, *Soil quality — Determination of pH*

ISO 10694, *Soil quality — Determination of organic and total carbon after dry combustion (elementary analysis)*

ISO 11047, *Soil quality— Determination of cadmium, chromium, cobalt, copper, lead, manganese, nickel and zinc - Flame and electrothermal atomic absorption spectrometric methods*

ISO 11261, *Soil quality — Determination of total nitrogen — Modified Kjeldahl method*

ISO 11265, *Soil quality — Determination of the specific electrical conductivity*

ISO 11465, *Soil quality — Determination of dry matter and water content on a mass basis — Gravimetric method*

ISO 14255, *Soil quality — Determination of nitrate nitrogen, ammonium nitrogen and total soluble nitrogen in air-dry soils using calcium chloride solution as extractant*

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

ISO 17319, *Fertilizers and soil conditioners —Determination of water-soluble potassium content — Potassium tetraphenylborate gravimetric method*

### 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 organic Fertilizer**  
any product in solid or liquid form, of plant (except by-products from petroleum industries) or animal origin that has undergone substantial decomposition that can supply available nutrients to plants. This may be enriched by microbial inoculants and naturally occurring minerals but no chemical or inorganic fertilizer material has been added to the finished product to affect the nutrient content.

**3.2 pathogens**  
organisms (microorganisms and infective parasites) that can cause negative effects on plants, animals and human health

**3.3 microbial inoculant**  
biologically active living cells containing optimum population of one or a combination of active strains of bacteria, algae and fungi that are useful in different biological activities, such as but not limited to: Nitrogen fixation, decomposition of organic residues and enhancement of nutrient availability.

**3.4 label**  
display of the written, printed or graphic information on the immediate container of any product

**3.5 lot**  
all containers in a consignment belonging to the same batch of manufacture constitute a lot.

**3.6 batch**  
organic fertilizer that is produced from the same type of organic materials, at the same time and location, by the same manufacturer/producer, or made during the same cycle or period of manufacture.

**3.7 sample size**  
number of samples drawn from each batch of organic fertilizers to be analyzed.

### 4 Requirements

#### 4.1 General quality requirements

- a) For organic fertilizers with microbial inoculants, the genus shall be verifiable as natural source and be indicated on the label.
- b) Organic fertilizer shall be free from foul smell and foul odour.
- c) Organic fertilizers in solid form shall be homogenous in texture.
- d) Organic fertilizers in solid form shall be fine enough for one hundred per cent thereof to pass through a 5 mm standard sieve.
- e) The organic fertilizer shall not contain substances that are likely to be detrimental or injurious to vegetation, animals, public health or the environment when used according to the directions provided by the manufacturer.

- f) The organic fertilizer shall not contain substances that would, when applied in amounts commonly used or as specified in the directions for use, leave in the tissues of a plant a residue of a poisonous or harmful substance.
- g) No chemical or inorganic materials should be added to organic fertilizers

## 4.2 Raw materials

Only allowed raw materials such as

- a) Farm animal manure, slurry, and urine
- b) Vermi compost
- c) Compost produced from organic residues
- d) Green manure and green leaf manure
- e) Azolla
- f) Mulches from sugar cane trash, straw, etc.
- g) Kitchen waste
- h) Coir pith, plantation by-products & wastes
- i) Mushroom beds
- j) Oil cakes, milled by-products, etc.
- k) Tea/coffee grounds
- l) Fish and fish products without preservatives
- m) Seaweed
- n) Crop residues (straw, peanut hulls, etc.)
- o) Plant growth promoting microbes such as Trichoderma, Rhizobia, Mychorrizae and others of non-GMO origin should be used

Those restricted should be used after having undergone recommended treatment or quality control (Annex A).

## 4.3 Specific requirements for organic fertilizers

Organic fertilizers shall comply with the requirements in table 1.

Table 1 — Specific requirements for organic fertilizers

S/N	Properties	Organic Fertilizer Limit	Test Methods
1	Total NPK (%)	5-7	ISO 11261, ISO 6598 and ISO 5318
2	C:N	12:1 - 15:1	-
3	Soluble salts (Conductivity), mmhos/cm, max.	5	ISO 11265
4	Total Nitrogen, %, m/m, min.	1	ISO 11261
5	Organic carbon, %, m/m, min.	12	ISO 10694
6	Moisture Content (Solid Organic fertilizer) (%), m/m	30-35	ISO 11465
7	p <sup>H</sup>	6.0-10.0	ISO 10390
8	Stones >5mm size, %, m/m, max.	5	
9	Seed, number/kg, max	5	

### 4.3 Microbiological limits

Organic fertilizers shall comply with the limits for micro-organisms specified in table 2.

Table 2 — Microbiological limits for Organic Fertilizers,

Pathogens	Limit
Fecal Streptococci (cfu/g)	$5 \times 10^2$
Total coliforms (cfu/g)	$5 \times 10^2$
Salmonella	Absent
Infective parasites	Absent
<i>Escherichia coli</i>	Absent
Enterococci	Absent

## 5 Contaminants

The maximum limits for heavy metal contaminants in organic fertilizers shall comply with the requirements as specified in Table 3.



**Table 3 — Contaminant limits for Organic fertilizers**

Heavy Metals	Limit (mg/kg dry wt)	Test method
Arsenic (As)	10	ISO 17318
Lead (Pb)	100	ISO 17318
Mercury (Hg)	2	ISO 17318
Cadmium (Cd)	5	ISO 17318
Copper(Cu)	300	ISO 11047
Chromium(Cr)	50	ISO 17318

## 6 Weights and measures regulations

The volume and fill of the organic fertilizers shall comply with the weights and measures legislation.

## 7 Packaging

The containers, including packaging materials, used to package organic fertilizers shall be made only of materials, which are safe and suitable for their intended uses. They shall not impart any toxic substance or undesirable odour or flavour to the product.

## 8 Labelling

### 8.1 Required information on the label

The packages shall be legibly and indelibly labelled in English with the following information:

- a) name of the product as “Organic fertilizer”;
- b) active ingredient shall appear in close proximity to the name of the product by specifying the genus and species of microbial inoculants;
- c) name and physical address of manufacturer/producer, exporter, packer or distributor;
- d) type of carrier;
- e) batch or code number;
- f) crops for which it is intended;
- g) storage/disposal instructions;
- h) date of manufacture;
- i) expiry date;
- j) net content in metric units;
- k) nutrient content
- l) product registration number;

- m) risk warning
- n) rate of application; and
- o) directions/instructions for use.

## **8.2 Other labelling requirements**

### **8.2.1 Testimonials/Endorsements**

The public has no way of evaluating the status of the endorser in relation to a product. For this reason, testimonials and endorsements will be viewed as claims and evaluated accordingly.

### **8.2.2 Other Claims**

Any reference to the activity of a product containing plant nutrients that is not generally associated with its nutritional value shall be substantiated with statistically significant efficacy data derived from field trials.

### **8.2.3 Nutrient guarantees**

Any product represented as a source of plant nutrients shall carry a guaranteed analysis.

### **8.2.4 Directions for use**

**8.2.4.1** All specialty fertilizers shall carry instructions for use. These instructions shall specify both the rate and time and frequency of application based on the growth stage and crop. Suggested rates of application shall provide an adequate quantity of nutrients to the plants concerned.

**8.2.4.2** Where the product does not contain all 3 major plant nutrients, the label should carry a statement indicating that some plants may require an additional source of the nutrient(s) that are lacking.

**8.2.4.3** Any product containing composted materials or plant nutrients may represent a potential hazard when misused. In order to avoid giving the impression that reasonable precautions are unnecessary, blanket statements suggesting that the product is completely safe and non-toxic to humans, animals or the environment shall not appear on the label.

### **8.2.5 Miscellaneous terms**

**8.2.5.1** Words, such as balanced and healthy, shall be avoided as they are often misunderstood and consequently misleading.

**8.2.5.2** Also objectionable and comparatives such as best, superior, and greener, as they imply a comparison without indicating the basis of this comparison

### **8.2.6 Slowly available plant nutrients**

Only products providing at least 70% of a plant nutrient in a slowly available form may indicate this on the label. Such a claim shall be accompanied by the associated guarantee.

### **8.2.7 Low leaching potential**

Only products containing at least 70% of a nutrient in a slowly available form may indicate that nutrient will be slowly available and thus unlikely to leach when used in accordance with label instructions

## 9 Sampling

If the consignment is declared to consist of different batches of manufacture, containers of the same batch shall be grouped together and each group so formed shall constitute a separate lot.

Samples shall be tested from each lot for ascertaining conformity to the requirements of this standard.

### 9.1 Sampling for solid organic fertilizers

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

### 9.2 Sampling for liquid organic fertilizers

All finished liquid products shall be subjected to lot sampling for laboratory analysis in accordance with Table 5:

Number of containers */ per batch	Containers to be sampled
<50	1
51 to 100	2
101 to 300	3
301 to 500	4
More than 500	5
Note: 1 container = 1L	

#### 9.2.1 Procedure for composite sampling:

- i. Present to the inspector the production documents containing the number of containers per batch number and container number.
- ii. The inspector will randomly select the container number and subject the selected containers for analysis.
- iii. Information relative to the sample taken must be accurate and complete to allow traceability of the sample back to the lot from which it was sampled.

**Note:** If the samples analyzed do not conform to the standards, the CB should review the production process which may include bulk sampling

#### 9.2.2 Sample preparation for laboratory analysis for organic liquid fertilizers

For liquid fertilizers without suspended particles, stir the sample until it is thoroughly mixed, before taking a sample.

For liquid fertilizers with suspended particles, take a sample while mixing the material in order to obtain a representative sample.

## ANNEX A (informative)

### List of restricted and prohibited raw materials as inputs for organic fertilizer production

S/N	Input	Status	Limitations/Rationale
1	Raw / undecomposed Human excrement , including urine	P	Risk of contamination
2	Sewage sludge	R	Only sludge from farms/bio-digesters is allowed
3	Saw dust, bark, wood chips, wood ash	R	Wood not chemically treated after felling
4	Blood meal, bone, and other meal brought in from other sources	R	Origin of materials should be disease - free and without preservatives
5	Guano	R	Concerns on environmental sustainability - rate of extraction is subject to DENR regulations
6	Segregated biodegradable market waste	R	Has undergone proper segregation, and does not contain hazardous materials
7	Sedimentary rocks (limestone, dolomite, rock phosphate)	R	May contain elevated levels of trace elements. Detailed chemical analysis is necessary.
8	Igneous rocks (andesite, basalt, gabbro, diorite)	R	May contain elevated levels of trace elements. Detailed chemical analysis is necessary.
9	Metamorphic rocks (slate, schist)	R	May contain elevated levels of trace elements. Detailed chemical analysis is necessary.
NOTE1: If in case there are raw materials not listed in this Standard, the requirements of the National Organic Agriculture Standards shall be followed			
NOTE 2: P and R stands for prohibited and restricted respectively			

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