KENYA STANDARD **KS 2290: 2011**

Organic fertilizer-Specification

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TECHNICAL COMMITTEE REPRESENTATION

The following organizations were represented on the Technical Committee:
Cenart consort
Osho Chemicals
Kenya Organic Agriculture Network
Ministry of Agriculture
Kenya Institute of Organic Farming
Consumer information network
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SACDEP KENYA
Kenya Bureau of Standards — Secretariat

REVISION OF KENYA STANDARDS

In order to keep abreast of progress in industry, Kenya Standards shall be regularly reviewed. Suggestions for improvements to published standards, addressed to the Managing Director, Kenya Bureau of Standards, are welcome.

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Foreword

This Kenya standard was prepared by the Technical Committee on Organic farming and organic products and it is in accordance with the procedures of the Kenya Bureau of standards.

Organic fertilizers are natural products used by farmers to provide food (plant nutrients) for the crop plants. There are a number of organic manures like farmyard manure, green manures, compost prepared from crop residues and other farm wastes, vermicompost, oil cakes, and biological wastes - animal bones, slaughter house refuse.

Organic fertilizers increase the organic matter content in the soil. Organic matter is in turn decomposed by living micro-organisms into final stages of humus. Humus releases the plant food in available form for use by the crops. However, organic manures should not be seen only as carriers of plant food. These manures also enable a soil to hold more water and also help to improve the drainage in clay soils. and generally improve the soil texture and structure. They provide organic acids that help to dissolve soil nutrients from the rock particle sand make them available for plants growth.

Mineral deposits include phosphate rock, greensand, Epsom salt, calcium, limestone flour and many other natural mineral deposits.

During the preparation of this standard reference was made to the following documents:
EAS 456:2007-Organic products standard

FAO/AGL: fertilizer specifications, 2010

Acknowledgement is hereby made for assistance derived from this source.

KENYA STANDARD
Organic Fertilizer-Specification

1. Scope

. This Kenya standard specifies requirements and prescribes methods of test for organic Fertilizers. Microbial fertilizers are covered in another standard.

2. Descriptive Terms:

In the application of this standard the following definitions shall apply.

2.1 Organic matter

The partially humified remains of animals and plants. For this reason, only products that are solely derived from organic matter may be identified or described as "organic".

2.2 Organic based product-

A product that contains at least 70% organic matter.

2.3 Organic fertilizer

A fertilizer that is naturally occurring in nature, which originates from organic matter and those derived from mineral deposits. This includes: farmyardmanure,green manure,compost, bat guano, alfalfa meal, bone meal, blood meal, feather meal and sea weed meal, and other materials found in nature.

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2.4 Natural fertilizer

Mineral nutrients include phosphate rock, greensand, Epsom salt, calcium, limestone flour and many other natural mineral deposits

Materials that are directly mined from mineral deposits and only subjected to physical processes such as crushing and drying. . Examples of these materials may include: phosphate rock; gypsum; sulphate of potassium-magnesia that has been derived from ores that have been crushed, washed in water, dried and screened.

2.5 manure

General term referring to Organic matter used as a natural fertilizer

2.6 Green manure

Plants which are mainly succulent and leafy legume crop which are grown for a short duration and then ploughed in the same field and incorporated by ploughing.

2.7 Green leafy manure
These are mainly leguminous plants, grown for a short duration and ploughed back into the soil at their succulent and leafy stage.

2.8 Compost
Well decomposed organic wastes like plant residues, animal dung and urine earth from livestock sheds or waste fodder.

2.9 Vermicomposting
Type of compost making in which earthworms are used to convert organic wastes into valuable materials to supply nutrients for crops
2.10 Bone meal

Fertilizer made from the bones of animals which have been used as food
2.11 Bat guano
Fertilizer obtained from accumulation of bat manures in caves and other places inhabited by bats.

2.12 Blood meal
This is dried, powdered blood collected from livestock slaughterhouses.

2.13 Fish emulsion
A partially decomposed blend of finely pulverized fish

2.14 Cottonseed meal
Milled cotton seeds from the cotton industries which is used as a fertilizer

2.15 Sewer sludge
A recycled product of sewage treatment plants

3.0 General requirements

3.0.1 Good quality manure shall be dark in colour

3.0.2 Good quality manure shall be free from foul smell

3.0.3 Organic manures shall be homogenous in texture

3.0.4. The manure shall be free from contaminants which include but not limited to residual hormones, antibiotics, pesticides and disease organism.

3.0.5. A high-temperature aerobic composting shall be employed to make the compost.

3.1 fresh manures

3.1.0. All fresh manures should be composted. However, where they are used the following conditions shall apply:

3.1.1 Fresh manures shall not be used as preplant or side dress fertilizers on vegetables that are eaten raw.

3.1.2 Dog, cat or pig manures and those derived from equines (donkey and horse family) shall not be used as these species share many parasites with humans.

3.1.3 Raw manure may NOT be applied to food crops within 120 days of harvest where edible portions have soil contact.

3.1.4.. Raw manure may NOT be applied to food crops within 90 days of harvest where edible portions do not have soil contact (i.e., grain crops, and most tree fruits.)

3.1.5. The manures shall be free from heavy metals and other chemical contaminants.

3.1.7. Untreated human wastes shall not be used as manure

3.2 Composted manures

3.2.1. All manures shall be fully composited during which the compost shall be turned at least once.

3.2.2. A standard organic fertilizer shall be based on composted livestock and/or plant materials supplemented with only natural products.

3.3. Specific Quality Requirements

Organic fertilizers shall conform to the composition requirements set out in table 1

Table 1: compositional requirements for organic manures

SL/NO	PARAMETER	LIMIT
i	pH	6.5-7.5
ii	Carbon: Nitrogen ratio, min	≤ 20:1
iii	Moisture	15-25%
iv	Temperature	20-30^0
v	Humus	6-8%
vi	Nitrogen	>1%
Vii	Organic matter content, percentage by weight, min	70%
viii	Organic carbon,% by weight, min	12
ix	Total primary nutrients,% by weight ,min	5

3.4. Minimum percentage for guarantee

Secondary Plant Nutrients must not be identified and guaranteed if they are not present in at least the following minimum concentrations:

ELEMENT	PER CENT MINIMUM.
Calcium(Ca)	1.0000
Magnesium (Mg)	0.5000
Sulphur (S)	1.0000
Boron (B)	0.0200
Cobalt (Co)	0.0005
Copper (Cu)	0.0500
Iron (Fe)	0.1000

Manganese (Mn)	0.0500
Molybdenum (Mo)	0.0005
Zinc (Zn)	0.0500

4.0. Heavy Metal contaminants

Metal contaminants if present shall conform to the following limits

	PARAMETER	LIMIT, mg/kg	TEST METHOD
i)	Arsenic, max	10	AOAC
ii)	Cadmium, max	5	AOAC
iii)	Chromium, Max	50	AOAC
iv)	Copper ,max	300	AOAC
v)	Lead	30	AOAC

5.0 labelling

5.1The packages shall be legibly and indelibly labelled with the following information:

i. Nutrient content

ii. Carbon/Nitrogen ratio

iii. Organic matter content

iv. Moisture content

v. Batch number

vi. Percentage inert materials (gravel, plastic etc.)

vii. Name of the manufacturer/packer/importer

viii. Date of manufacture

ix. Expiry Date

x. Instructions for use

5.2 Other labelling guidelines

a) 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.

b) Other Claims

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

c) Nutrient Guarantees

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

d). Directions for Use

All specialty fertilizers must carry instructions for use. These instructions must specify both the rate and frequency of application. Suggested rates of application must provide an adequate quantity of nutrients to the plants concerned.

e) 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.

f) 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 must not appear on the label.

g) Miscellaneous Terms

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

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

h) Environmentally Beneficial

Any product represented as "environmentally sound", etc. must identify the rationale for the claim and list all ingredients in order to allow the consumer to determine the validity of the statement.

I) 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 must be accompanied by the associated guarantee.

J) Low Leaching Potential

Only products containing at least70% 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.

K) Improving Soil Structure

In order to suggest that the use of an organic or organic based product will improve the structure of a soil, it must be recommended for use at rates that could be expected to significantly increase the organic matter level of the soil.Such as 1kg per square metre or 10 metric tonnes per hectare

L) Any fertilizer shall only be labelled as organic if it conforms to this standard.

ANNEXXE A (NORMATIVE)

SUBSTANCES THAT MAY BE USED AS FERTILIZERS OR SOIL CONDITIONERS

SUBSTANCE	DESCRIPTION; COMPOSITIONAL REQUIREMENTS; CONDITIONS OF USE
Farmyard and poultry manure	Products comprising a mixture of animal excrements and vegetable matter (animal bedding). Indication of animal species. Coming from extensive farming, but if sourced from intensive farming or not sourced from organic production systems, need recognition by the approved certifying organisation and shall be composted.
Slurry or urine (not from human origin)	If not from organic sources, need recognition by the approved certifying organisation. Use after controlled fermentation and/or appropriate dilution. Factory farming sources not permitted. Indication of animal species.
Composted animal excrements, including poultry manure	Factory farming sources not permitted. Need recognition by the approved certifying organisation. Indication of animal species.
Dried farmyard manure and dehydrated poultry manure	Need recognition by the approved certifying organisation. Indication of animal species. Coming from extensive farming, but if from intensive farming sources it must be composted.
Guano (bird and bat)	Need recognition by the approved certifying organisation.
Straw	Need recognition by the approved certifying organisation.
Composts from spent mushroom & dejecta of worms and insects (vermiculture substrates)	The initial composition limited to products on this list.
Composted or fermented organic household refuse	Organic vegetable and animal waste separated from household waste, which has been subjected to composting or anaerobic

SUBSTANCE	DESCRIPTION; COMPOSITIONAL REQUIREMENTS; CONDITIONS OF USE
	fermentation for biogas production. Need recognition by the approved certifying organisation. Maximum concentrations in mg/kg of dry matter: Cadmium: 0,7; Copper: 70; Nickel: 25; Lead: 45; Zinc: 200; Mercury: 0,4; Chromium (total): 70; Chromium (VI): 0(*). (*) = limit of determination.
Composted or fermented plant residues	Need recognition by the approved certifying organisation. Mixtures of plant matter which has been subjected to composting or anaerobic fermentation for biogas production.
Products and by-products of animal origin from slaughterhouses & fish industries: - blood meal - hoof meal - horn meal - bone meal or degelatinised bone meal - fish meal - meat meal - feather, hair and "chiquette" meal - wool - fur - hair - dairy products	Need recognition by the approved certifying organisation. - - - - Heavy metal contamination monitoring necessary. - - - maximum concentration in mg/kg of dry matter of Chromium (VI):0 (*). (*) = limit of determination - -
By-products of food & textile industries	Not treated with synthetic additives. Need recognition by the approved

SUBSTANCE	DESCRIPTION; COMPOSITIONAL REQUIREMENTS; CONDITIONS OF USE
	certifying organisation.
Seaweeds and seaweeds products	Need recognition by the approved certifying organisation. Directly obtained by -- physical processes; extraction with water or acid and/or alkaline solution; and fermentation.
Sawdust, bark and wood waste	From wood not chemically treated after felling.
Wood ash	From wood not chemically treated after felling.
Natural phosphate rock	Need recognition by the approved certifying organisation. Cadmium should not exceed 90 mg/kg of $P_2 0_5$.
Basic slag	Need recognition by the approved certifying organisation.
Rock potash, mined potassium salts (e.g. kainite, sylvinite)	Need recognition by the approved certifying organisation.
Potassium sulphate, possibly containing magnesium salt	Obtained by physical procedures but not enriched. Need recognition by the approved certifying organisation. Derived from crude potassium salt.
Calcium carbonate of natural origin (e.g. chalk, marl, maerl, limestone, phosphate chalk)	-
Magnesium and calcium carbonate of natural origin (e.g. magnesian chalk, ground magnesium limestone)	-
Industrial lime from sugar production	Need recognition by the approved certifying organisation.
Epsom salt (magnesium-sulphate)	-

SUBSTANCE	DESCRIPTION; COMPOSITIONAL REQUIREMENTS; CONDITIONS OF USE
Gypsum (calcium sulphate)	Only of natural origin.
Stillage and stillage extract	Ammonium stillage excluded.
Sodium chloride	Only mined salt. Need recognition by the approved certifying organisation.
Aluminium calcium phosphate	Cadmium should not exceed 90 mg/kg of P_2O_5. Use lmited to basic soils (pH > 7,5).
Trace elements (e.g. boron, copper, iron, mangese, molybdenum, zinc)	Need recognition by the approved certifying organisation.
Sulphur	Need recognition by the approved certifying organisation.
Stone meal	-
Clay (e.g. bentonite, vermiculite, perlite, zeolite)	-
Naturally occurring biological organisms (e.g. worms)	-
Peat	Excluding synthetic additives; permitted for seed, potting module composts (limited to horticulture).
Calcium chloride solution	Need recognition by the approved certifying organisation. Foliar treatment of apple trees after identification of deficit of calcium.
By-products of industries processing ingredients from organic agriculture	Need recognition by the approved certifying organisation.