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ICS 67.060

DRAFT EAST AFRICAN STANDARD

Bread — Specification

EAST AFRICAN COMMUNITY

Third Edition 2022

Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in East Africa. It is envisaged that through harmonized standardization, trade barriers which are encountered when goods and services are exchanged within the Community will be removed.

In order to meet the above objectives, the EAC Partner States have enacted an East African Standardization, Quality Assurance, Metrology and Test Act, 2006 (EAC SQMT Act, 2006) to make provisions for ensuring standardization, quality assurance, metrology and testing of products produced or originating in a third country and traded in the Community in order to facilitate industrial development and trade as well as helping to protect the health and safety of society and the environment in the Community.

East African Standards are formulated in accordance with the procedures established by the East African Standards Committee. The East African Standards Committee is established under the provisions of Article 4 of the EAC SQMT Act, 2006. The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the procedures of the Community.

Article 15(1) of the EAC SQMT Act, 2006 provides that "Within six months of the declaration of an East African Standard, the Partner States shall adopt, without deviation from the approved text of the standard, the East African Standard as a national standard and withdraw any existing national standard with similar scope and purpose".

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

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Bread — Specification

1 Scope

This draft East African Standard specifies the requirements, sampling and test methods for bread intended for human consumption

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.

EAS 12, *Potable water – Specification*

EAS 35, *Edible salt – Specification*

EAS 38, *General standard for the labelling of pre-packaged foods*

EAS 39, *Hygiene in the food and drink manufacturing industry – Code of practice*

EAS 321, *Edible fats and oils*

EAS 744, *Cassava and cassava products — Determination of total cyanogens — Enzymatic assay method*

CODEX Stan 193*, Codex general standard for contaminants and toxins in food and feed*

ISO 712, *Cereals and cereal products — Determination of moisture content — Routine reference method*

ISO 5498, *Agricultural food products — Determination of crude fibre content — General method*

ISO 6579, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Salmonella spp.*

EAS 767, Fortified wheat flour - Specification

ISO 21527-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds — Part 2: Colony count technique in products with water activity less than or equal to 0.95*

ISO 24333, *Cereals and cereal products — Sampling*

EAS 5, Refined white sugar — Specification

CXS 192, General Standard for food additives

ISO 4832 Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coliforms — Colony-count technique

3 Terms and definitions

For the purposes of this standard, the following terms and definitions shall apply.

3.1
bread
product obtained by baking fermented dough made from wheat flour in singly or in combination with non-gluten flour(s).

3.2
white bread
bread made from white wheat flour.

3.3
wholemeal wheat bread
bread made from wholemeal wheat flour

3.4
brown bread
product prepared from bakers flour and bran or a mixture of whole wheat flour and baker's flour

3.5
speciality bread
product with special features due to peculiar ingredients used in the manufacture beyond the essential ingredients such as those described in 4.2.3 – 4.2.11

3.6
milk bread
bread in which milk is used as an ingredient.

3.8
wheat germ bread
product containing added processed wheat germ

3.9
gluten bread
bread containing added gluten

3.10
high protein bread
product containing more of protein than ordinary bread

3.11
fruit bread
prepared made with dough which contains added fruit in the form of raisins, fruit peels or any combination of such ingredients

3.12
malt bread
bread made with dough which contains added malt products

3.13
gluten free bread;
bread made from wheat flour in which natural gluten have been removed

3.14
foreign matter
organic and inorganic materials (such as sand, soil, glass) other than extraneous matter in the bread

4 Requirements

4.1 Ingredients

4.1.1 Essential ingredients.

The following ingredients shall be used in the making of bread and each ingredient shall comply with relevant East African standards.

a) flour;

b) leavening agents; and

c) potable water

4.1.2 Optional ingredients

In addition to the essential ingredients in 4.1.1, the following ingredients but not limited to the following may be used in the making of bread and shall comply with relevant East African standards:

a) sugar and sugar products conforming to relevant standards

b) coconut milk/cream and their products

c) milk or milk products;

d) gluten;

e) fruits and fruit products;

f) edible nuts

g) cereals and cereal grains

h) edible common salt

i) sugar

j) eggs

k) edible oils and fats

l) spices and herbs

m) chocolate and

n) any food products fit for human consumption.

4.2 Specific requirements

4.2.1 Wholemeal wheat bread shall be made from 100 % wholemeal wheat flour.

4.2.2 Brown bread shall contain not less than 8 % wheat bran or 60 % wholemeal wheat flour.

4.2.3 Milk bread shall contain not less than 3.6 % by weight of milk solids.

4.2.5 Wheat germ bread shall contain not less than 10 % by weight of added processed wheat germ and 'wheat germ' for the purpose of this paragraph means a product of wheat milling containing not less than 23 % protein and not less than 6.5 % oil.

4.2.6 Gluten bread shall contain not less than 16 % gluten calculated on the dry weight of bread.

4.2.7 Gluten free bread shall contain less than 20 mg/kg of gluten when sold as such.

Introduce sprouted grains bread, Sourdough bread, Flourless Bread, Flavored Bread, Keto Bread, Flat Bread.

4.2.8 High protein bread shall contain not less than 22 % protein calculated on the dry weight of the bread.

4.2.9 Fruit and or vegetable bread shall be made from dough which contains not less than 6% of added fruit and or vegetable calculated on the weight of the flour used.

4.2.10 Malt bread shall be made from dough, which contains not less than 6 % of added malt products, calculated on the weight of the flour used.

4.2.11 Rye bread shall be made from dough which contains not more than 15% of rye flour calculated on the weight of flour used.

4.3 General Quality requirements

4.3.1 Bread crust

The crust shall have a golden brown colour whereas crust from speciality and brown bread shall have characteristic colour of material used. The crust shall be free from blisters except for Brown and speciality bread.

The crust shall be not burned and shall be free from soot or any other foreign matter. The bread shall be evenly baked on all sides including the bottom. The crust should not be thin and break easily. It should not be thick, tough, or rubbery. .

4.3.2 Volume

The bread shall have volume to weight ratio of not more than 6.0 to 1 when tested in accordance with Annex C.

4.3.3 The crumb

The crumb shall be springy, with small pores uniformly distributed throughout and with thin cell walls. It shall be free from non-porous mass, lumps of flour or salt, or any other evidence of incomplete mixing.

There shall be no hollow between the crust and the crumb.

The crumb shall have colour characteristic of the ingredients used. When sliced, the surface of slices shall present a uniform shade without streaks or dark patches.

4.3.4 Flavour

The flavour shall be characteristic of fresh, well-baked bread, free from abnormal flavour or any other objectionable flavour.

4.3.5 Aroma

The aroma shall be fresh and shall not be musty ormetallic

4.3.6 Mould or Rope

The bread shall be free from indications of rope or mould.

4.3.7 Internal texture

The structure shall be uniform with thin-walled cells. The texture is soft and velvety, without weakness, and shall not crumble.

4.3.8 Taste mastication

The bread shall have a pleasant and acceptable taste. The loaf shall be free from doughiness and not dry or tough.

4.3.9 Foreign matter

The bread shall be free from any foreign matter except for a small amount of added edible grains dusting bran, maize flour or rice flour from the baker's shovel which may adhere to the bottom of the loaf.

4.3.10 Specific requirement.

Bread shall comply with the requirements given in Table 1 when tested in accordance with the test methods specified therein'

Table 1 – Specific requirements for bread

S/N	Parameter	Requirements	Methods of tests
1	Moisture content, %, max.	40	ISO 712
2	pH of aqueous extract	5.0 - 6.0	Annex A
3	Acid insoluble ash, %, mass by mass, on dry basis, max.	0.2	Annex B
4	Crude fibre % m/m on dry basis, max, white	2	ISO 5498

	bread		
5	Crude fibre % m/m on dry basis, min, brown bread/wholemeal bread	2	ISO 5498
6	Volume to weight ratio, max	6.0:1	Annex C

5 Food additives

The food additives if used, shall contain only permitted additives at the level of good manufacturing practice as quoted in accordance with Codex Stan 192.

6 Hygiene

The bread shall be prepared and handled in accordance with EAS 39.

Bread shall conform to the limits of micro-organisms in Table 2.

Table 2 – Limits for microorganisms in bread

S/N	Microorganisms	limit	Method of test
1	*E. coli*, in cfu/g or max	absent	ISO 16649-2
	MPN/g,	< 1	ISO 7251
2	Salmonella spp per 25g, max.	Absent	ISO 6579 part 1
3	Yeast and Moulds, cfu/ g, max.	10^3	ISO 21527-1
	Coagulase positive Staphylococci per cfu/g	absent	ISO 6888-1

7 Contaminants

7.1 Pesticide residues

Bread shall conform to those maximum residue limits for pesticide residues established by Codex Alimentarius Commission for this commodity.

7.2 Other contaminants

Bread shall conform to those maximum levels of the Codex General Standard for Contaminants and Toxins in Food and Feed (CODEX STAN 193).

8 Packaging

Bread shall be packaged in food grade materials that will safeguard the hygienic, nutritional and organoleptic qualities of the product

9 Weights and measures

Bread shall be packaged in accordance with the weights and measures requirements in the destination country.

10 Labelling

10.1 In addition to the requirements of EAS 38, the following specific labelling requirements shall apply and shall be **legibly** and **indelibly** marked;

a) common name of the product, 'bread' and the terminology describing the bread e.g. brown bread, wholemeal wheat bread, etc.

b) complete list of ingredients shall be declared on the label in descending order of proportion;

c) net weight in metric units;

d) name and physical address of the manufacturer/packer/distributor of the product shall be declared on the label;

e) date of manufacture;

f) lot identification/batch number;

g) best before date;

h) country of origin;

i) units;

j) storage instructions; and

k) Instructions on disposal of used package.

10.2 When labelling non-retail packages, information for non-retail packages shall either be given on the packages or in accompanying documents, except that the name of the product, lot identification and the name and address of the manufacturer or packer shall appear on the packages.

11 Sampling

Sampling of bread shall be done in accordance with ISO 24333.

Annex A
(normative)

Determination of pH of aqueous extract

A.1 Apparatus

pH meter

A.2 Procedure

A.2.1 Preparation of aqueous extract of the material

Grind to a fine paste about 10 g of the material in a glass pestle and mortar, add 100 mL of water and mix thoroughly. Allow the mixture to stand for about 15 min.

A.2.2 Determination of pH of aqueous extract

Determine the pH of the solution using the pH meter.

Annex B

(normative)
Determination of acid insoluble ash

B.1 Reagents

Dilute hydrochloric acid, prepared by diluting concentrated hydrochloric acid with water in a ratio of 2:5 or 5N

B.2 Apparatus

B.2.1 Muffle furnace at 600 °C ± 20 °C

B.2.2 Water bath

B.2.3 Sinter crucible

B.2.4 Platinum dish

B.3 Procedure

Weigh accurately 5 g -10 g of finely powdered bread in a porcelain or platinum dish. Ignite the material in the dish with a suitable flame until it chars. Place the ignited bread in the muffle furnace. Heat at 600 °C ± 20 °C for at least 1 h. Remove the dish from the furnace and cool.

Wet the ash with a suitable amount of hydrochloric acid, and place on a water bath for 10 min. Filter through a No. 1 sinter glass crucible. Wash the crucible with water until the washings are free from acid. Dry the crucible in an air-oven for 2 h. Cool in a desiccator and weigh. Repeat the process until the difference between two successive weighings is less than 1 mg. Take the lowest mass.

B.4 Calculation

Acid insoluble ash, percent by mass (on wet basis) A = M_2 X 100/M_1

where,

A, Acid insoluble ash on wet basis

M_1 is the mass of sample, and

M_2 is the of insoluble matter.

Acid insoluble ash, percent by mass (on dry basis) = $\frac{A \times 100}{100 - M}$where,

M, Moisture content of bread.

Annex C
(normative)

Determination of volume/weight ratio

C1. Apparatus

C1.1 Rigid container

C1.2 Rape seeds

C1.3 Weighing scale

C1.4 Measuring cylinder

C1.5 Loaf volumeter

C1.6 Plate

C2 Determination of volume/weight ratio by displacement method

C2.1Procedure

Weigh the loaf after it is cooled to room temperature and record the weight. Fill the container with rape seeds and level the top of seeds with a plate. Empty out the seeds leaving a layer at the bottom of the container. Place the loaf on the layer of seeds. Fill the rest of the container with seeds and level the top surface with a plate. Pour the remaining rape seeds into the measuring cylinder and measure the volume.

C2.1.1 Volume/weight ratio for the bread $= \frac{V}{W}$

where,

V is the volume in ml of the remaining seeds after displacement;

W is the weight in g of the loaf.

NOTES

1. Do not press the loaf while keeping in the box.

2. For sliced bread, test before bread is sliced.

C3 Determination of volume of loaf by loaf volumeter

C3.1 Procedure

C3.1.1 Calibration of volumeter with dummy loaf

Open the container and place a dummy loaf into it. Close the container and open the gate. Remove the hopper lid and fill the calibrated column with rape seeds. Tap the column three

times to ensure maximum use of seeds around the dummy loaf. Empty all excess seeds by closing the gate and swinging down the column. Return the column to upright position and secure the lid to the container. Open the gate and swing down the volumeter to allow rape seeds to empty from bottom pan. When it is completely empty, close the gate and swing the volumeter to upright position.

C3.1.2 Measurement of the volume of loaf

Weigh the loaf after it is cooled to room temperature and record the weight. Place the loaf in the volumeter and repeat the procedure as that for dummy loaf. The volume of the loaf will be indicated by the level of seeds in the calibrated column.

NOTE: The loaf must be larger than the dummy loaf.

C3.1.3 Volume/weight ratio for the bread = $\frac{V}{W}$

where,

V is the volume in ml of the loaf;

W is the weight in g of the loaf.

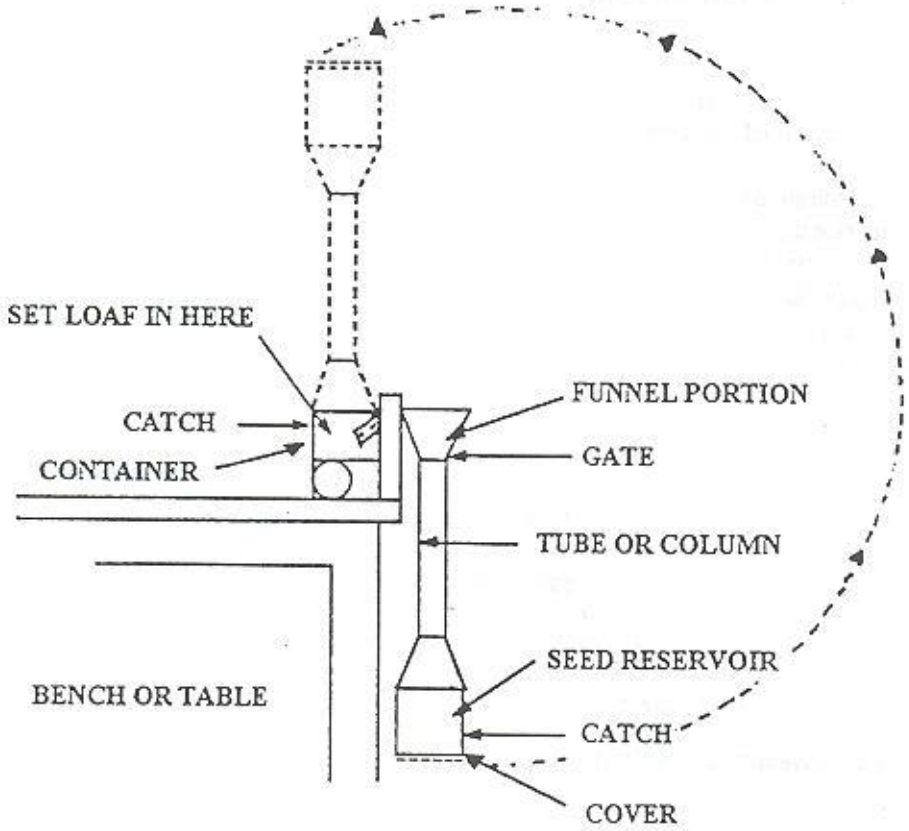

Figure F1 – Diagram of a loaf volumeter