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## **DRAFT EAST AFRICAN STANDARD**

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**Milled maize (corn) products — Specification**

**EAST AFRICAN COMMUNITY**

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## Foreword

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

In order to achieve this objective, the Community established an East African Standards Committee mandated to develop and issue East African Standards.

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.

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.

EAS 44 was prepared by Technical Committee EAS/ TC 014, *Cereals and pulses*.

This second/third/... edition cancels and replaces the first/second/... edition (EAS nnn-n:19xx), [clause(s) / subclause(s) / table(s) / figure(s) / annex(es)] of which [has / have] been technically revised.

## Milled maize (corn) products — Specification

### 1 Scope

This draft East African Standard specifies the requirements, methods of sampling and test for whole maize meal, granulated maize meal, sifted maize meal, maize grits and maize flour from the grains of common maize (*Zea mays L.*) intended for human consumption. Maize grits intended for brewing, manufacturing of starch and any other industrial use are not covered.

### 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 38, Labelling of prepackaged foods — Specification*

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

*EAS 2, Maize (grains) — Specification*

*EAS 41, Fruits, vegetables and derived products*

*EAS 74, Methods of test for animal feedstuffs*

*EAS 82, Milled cereal products — Methods of test*

*EAS 217, Methods for the microbiological examination of foods*

*ISO 16050, Foodstuffs — Determination of aflatoxin B1, and the total content of aflatoxins B1, B2, G1 and G2 in cereals, nuts and derived products — High-performance liquid chromatographic method*

*CODEX Stan 193, Codex general Standards for contaminants and toxins in Food and Feed*

*ISO 13690, Cereals, pulses and milled products — Sampling of static batches*

### 3 Terms and definitions

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

#### 3.1

##### **milled maize (corn) products**

products obtained from maize grains *Zea mays L.* through milling process. These include whole maize meal, granulated maize meal, sifted maize meal and maize flour.

**3.2**

**whole maize meal**

food prepared from fully mature, sound, un-germinated, whole kernels of maize, *Zea mays L.*, by a grinding process in which the entire grain is comminuted to a suitable degree of fineness.

**3.3**

**granulated maize meal**

coarse product obtained from milling and sifting of clean shelled maize

**3.4**

**sifted maize meal**

form of granulated maize meal that has been reduced to a certain degree of fineness

**3.5**

**sifting**

particle size separation by sieving and aspiration of milled products

**3.6**

**cleaned maize**

shelled maize that has been subjected to a cleaning process for the removal of foreign and objectionable matter originally present

**3.7**

**maize flour**

product obtained by removing the germ and bran followed by grinding, clean maize kernels using roller mills or other methods and sifting the resulting product to suitable degree of fineness

**3.8**

**food grade container**

container which will safeguard the hygienic, nutritional, technological, and organoleptic qualities of the product

**3.9**

**foreign matter**

organic or inorganic material other than wheat flour

## **4 Requirements**

### **4.1 General requirements**

#### **4.1.1 Maize grain**

Milled maize (corn) products shall be made from maize grain complying to EAS 2.”

#### **4.1.2 Milled maize (corn) products shall;**

- a) be of characteristic colour conforming to the colour of maize from which it was prepared;
- b) not contain any foreign matter such as insects, fungi, dirt or other contaminants;
- c) be free from fermented musty or other objectionable odour and colours;
- d) be wholesome and fit for human consumption in all aspects.

### **4.3 Specific requirements**

Milled maize (corn) products shall conform to the requirements given in Table 1.

Table 1 — Specific requirements

S/ No.	Characteristic	Type					Test methods
		Sifted maize meal	Granulated maize meal	Whole maize meal	Maize flour	Maize grit	
i)	Crude fibre content, % by m/m, max.	0.7	1.0	3.0	0.7	1.0	EAS 82
ii)	Crude fat on moisture free basis, % by m/m, max.	3.0	3.0	3.1*	3.0	3.0	
iii)	Moisture content, % by m/m, max.	14	14	14	14	14	
iv)	Total ash, % by m/m, max.	1.0	1.0	3.0	1.0	1.0	
v)	Acid insoluble ash, % by m/m, max.	0.15	0.35	0.40	0.15	0.15	
vi)	Fat acidity, mg KOH per 100g of product, on dry mass basis, max.	80	80	80	80	80	

\*Minimum crude fat on moisture free basis for whole maize meal

## 5 Food additives

Milled maize (corn) products may contain only the permitted food additives in the Codex Stan 192.

## 6 Hygiene

**6.1** Milled maize (corn) products shall be prepared and handled in accordance with the provisions of appropriate sections of EAS 39.

**6.2** The product shall conform to the microbiological limits in Table 2.

Table 2 — Microbiological limits

S/No.	Micro-organism	Maximum limit	Methods of test
i)	Total aerobic count per g	10 <sup>5</sup>	ISO 4832
ii)	<i>E. Coli</i> per 1 g	Absent	ISO 16649-1
iii)	<i>Salmonella</i> per 25 g	Absent	ISO 6579
iv)	Yeast and Moulds cfu/g	10 <sup>4</sup>	ISO 7954
v)	<i>S.aureus</i> per 25 g	10 <sup>2</sup>	ISO 6888-1



## 7 Contaminants

### 7.1 Heavy metals

Milled maize (corn) products shall conform to those maximum limits for heavy metals established by the Codex Alimentarius Commission as specified in Table 3.

**Table 3 — Heavy metals limits**

S/No.	Heavy metal	Limits (mg/kg)	Test methods
i)	Arsenic (As)	0.1	ISO 27085
ii)	Lead (Pb)	0.2	ISO 6633
iii)	Cadmium (cd)	0.1	ISO 6561-1 or ISO 6561-2

### 7.2 Pesticide residues

Milled maize (corn) products shall conform to those maximum residue limits established by the Codex Alimentarius Commission for this commodity.

### 7.3 Mycotoxins

Milled maize (corn) products shall conform to those maximum mycotoxin limits established by the Codex Alimentarius Commission as specified in Table 4.

**Table 4 — Mycotoxins limits**

S/No.	Mycotoxins	Limits	Test methods
i)	Total aflatoxins, µg/kg, max	10	ISO 16050.
ii)	Aflatoxins B1, µg/kg, max	5	
iii)	Fumonisin, µg/kg, max	2000	AOAC 2001.04

## 8 Weights and measures

The fill and the weight of the product shall conform to the weights and measures regulations of the importing partner state.

## 9 Packaging

Milled maize (corn) products shall be packaged in food grade containers. When the product is packaged in sacks, these must be clean, sturdy and strongly sewn or sealed.

## 10 Labelling

Labelling shall be done in accordance with EAS 38. At the minimum, the following information shall be displayed:

- a) name of product as "Whole Maize Meal, Sifted Maize meal, Maize Flour or Granulated Maize Meal";
- b) name and address of the manufacturer/packer/importer;

- c) brand name/registered trade mark;
- d) batch or code number;
- e) net weight in metric units;
- f) the statement "storage instructions
- g) the statement "Human Food";
- h) country of origin;
- i) date of manufacture;
- j) expiry date;
- k) instructions for disposal of used package.

## **11 Methods of sampling**

Sampling shall be done in accordance with the ISO 24333.

## Bibliography

CODEX STAN 154:1985(Rev.1:1995), Standard for whole maize (corn) meal

