



EAS 89:2010
ICS 67.060

EAST AFRICAN STANDARD

Millet flour — Specification

EAST AFRICAN COMMUNITY

Draft for comments only — Not to be cited as East African Standard

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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Introduction

Millet flour is commonly used for making porridge. It is also used as a supplement or substitute to maize for special dietary foods such as weaning. Its use has increased in recent years leading to increased production from domestic to commercial.

This standard has therefore been developed to protect the consumer from fraud and from many adulterations that may occur during production which may be hazardous to health. This standard is also formulated to guide the manufacturer in production. The revision was done to update the compositional requirements and microbiological limits with the current international standards as well as the practice in the industries.

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Millet flour — Specification

1 Scope

1.1 This East African Standard specifies requirements for millet flour for human consumption which is obtained from pearl millet of the Senegalese varieties (cultivars) “souna” and “sanio” grown from *Pennisetum glaucum* (L.) R.Br., proso millet grown from *Penicum maliaceum*) and finger millet grown from *Eleusine coracana* (L.) Gaertner.

1.2 This standard does not apply to grits or coarse grain obtained from millets mentioned in 1.1.

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.

CAC/GL 21, *Principles for the Establishment and Application of Microbiological Criteria for Foods*

CAC/RCP 1, *Recommended International Code of Practice — General Principles of Food Hygiene*

EAS 38, *Labelling of prepackaged foods — Specification*

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

EAS 103, *Schedule for permitted food additives*

CD-K-456-2010, *Finger millet grains — Specification and grading*

EAS 284, *Pearl millet grains — Specification and grading*

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*

3 Description

The flour is the product destined for human consumption which is obtained from millet grains grown from *Pennisetum glaucum* (L.) R.Br., *Penicum maliaceum* and *Eleusine coracana* (L.) Gaertner through a process of industrial milling during which the grain is cleaned, destoned and dehulled and the endosperm is reduced to a sufficiently fine powder.

4 Essential composition and quality factors

4.1 General provisions

4.1.1 The millet from which the flour is obtained shall be suitably dehulled and of sound quality, free from sand, abnormal odour and taste.

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4.1.2 Particle size

Using a standard method of sifting, not less than 85 per cent of the product shall pass through a sieve the dimension of the mesh of which is: diameter of 0.5 mm for 'fine' flour and diameter of 1 mm for 'medium' flour.

4.1.3 Millet flour shall be safe and suitable for human consumption.

4.1.4 Millet flour shall be free from abnormal flavours, odours, and living insects.

4.1.5 Millet flour shall be free from filth (impurities of animal origins, including dead insects) in amounts which may represent a hazard to human health.

4.2 Compositional requirements

The millet flour shall comply with the requirements of Table 1.

Table 1 — Compositional requirements for millet flour

| Parameter | Pearl millet | Finger/ proso millet | Test method |
|--------------------------------------|--------------|----------------------|-------------|
| Moisture content, % max. m/m | 13 | 13 | EAS 82 |
| Crude ash content, % max. | 1.2 | 4.2 | EAS 82 |
| Acid insoluble ash, % max. | 0.40 | 0.40 | EAS 82 |
| Protein content, % min. (N × 5.7) | 8.5 | 6.8 | EAS 74 |
| Crude fat, % max. | 5.0 | 2 | EAS 74 |
| Fibre content, % max. | 1.8 | 3.0 | EAS 82 |
| Calcium % as CaO min. | 0.02 | 0.10 | EAS 82 |

5 Food additives

The product shall contain only permitted additives complying with EAS 103.

6 Hygiene

6.1 It is recommended that the product covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of EAS 39 and other Codes of Practice recommended by the Codex Alimentarius Commission which are relevant to this product.

6.2 To the extent possible in good manufacturing practice, the product shall be free from objectionable matter.

6.3 When tested by appropriate methods of sampling and examination, the product:

- shall be free from microorganisms in amounts which may represent a hazard to health;
- shall be free from parasites which may represent a hazard to health; and
- shall not contain any substance originating from microorganisms in amounts which may represent a hazard to health.

6.4 The product shall be prepared with special care under good manufacturing practices, so that residues of those pesticides which may be required in the production, storage or processing of the product, or in the disinfestation of the premises and equipment used for the processing do not remain,

or, if technically unavoidable, are reduced to the maximum extent possible. Other contaminants such as leaves, stones, sisal or any other foreign matter shall be absent from the flour.

6.5 The product shall be free from pathogenic micro-organism and shall comply with microbiological limits in Table 2.

Table 2 — Microbiological limits for millet flour

| Sl. No. | Micro-organism | Maximum limit | Methods of test |
|---------|----------------------------|-----------------|-----------------|
| (1) | Total aerobic count per g | 10 ⁵ | EAS 217 |
| (11) | <i>E. Coli</i> per 10 g | Absent | EAS 217 |
| (III) | <i>Salmonella</i> per 10 g | Absent | EAS 217 |

6.6 The total aflatoxin limits in the millet flour shall not exceed of 10 ppb and 5 ppb for aflatoxin B1.

7 Contaminants

7.1 Heavy metals

Sorghum flour shall not contain metal contaminants exceeding the limits in Table 3.

Table 3 — Limits for metal contaminants

| S/No. | Element | Maximum limits mg/kg (ppm) | Method of test |
|-------|---------|-------------------------------|----------------|
| (i) | Copper | 2 | EAS 41-9 |
| (ii) | Lead | 0.1 | EAS 100 |
| (iii) | Arsenic | 0.1 | EAS 41-14 |
| (iv) | Mercury | 0.01 | EAS 41-16 |

8 Packaging, transport and storage

8.1 Millet flour shall be packaged in containers which will safeguard the hygienic, nutritional, technological, and organoleptic qualities of the product.

8.2 The containers, including packaging material, shall be made of substances which are safe and suitable for their intended use. They should not impart any toxic substance or undesirable odour or flavour to the product.

8.3 When the product is packaged in sacks, these must be clean, sturdy and strongly sewn or sealed.

9 Labelling

In addition to the requirements of EAS 38 the following specific provisions apply:

9.1 **The name of the product** — The name of the product shall be Finger Millet Flour or *Wimbi* (*Ulezi*), Pearl Millet Flour or Prosho Millet Flour.

9.1.1 The term 'fine' or 'medium' in accordance with 4.1.2 shall appear in close proximity to the name of the food.

9.2 **Net contents** — The net contents shall be declared by weight in metric ('Systeme International') units.

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9.3 Name and address — The name, location and address of both the manufacturer and packer, where the latter is different from the former, shall be declared.

9.4 Date marking — The date of minimum durability shall be declared (Sell by Date). The statements 'Human Food' and 'Store in a Cool Place' shall appear.

9.5 Country of origin or 'Made in East Africa' for regionally manufactured products.

9.6 batch or code number,

9.7 list of ingredient in descending order of proportion,

9.8 date of manufacture,

9.9 expiry date,

9.10 storage instructions,

9.11 instruction for the disposal of packaging waste.

9.12 Labelling of Non-Retail Containers

Information for non-retail containers shall either be given on the container 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 container. However, lot identification and the name and address of the manufacturer or packer may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

10 Methods of test

Testing of millet flour products shall be done according to the procedures stipulated in EAS 82.

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