

# UGANDA STANDARD

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## Fermented (non-alcoholic) cereal beverages — Specification

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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 coordinate 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.

The committee responsible for this document is Technical Committee UNBS/TC 2, Food and Agriculture, Subcommittee SC 16, Water, Drinks and Related Beverages

This second edition cancels and replaces the first edition (US 872:2011), which has been technically revised.



# Fermented (non-alcoholic) cereal beverages — Specification

## 1 Scope

This Draft Uganda Standard specifies requirements and methods of sampling and test for fermented (non-alcoholic) cereal beverages.

## 2 Normative references

The following referenced documents referred to in the text in such a way that some or all of their content constitutes requirements 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.

US EAS 38, *Labelling of pre-packaged foods — General requirements*

US 28/EAS 39, *Code of practice for hygiene in the food and drink manufacturing industries*

US 45, *General standard for food additives*

US EAS 12, *Potable water — Specification*

US EAS 803, *Nutrition labelling — Requirements*

US CAC/GL 50, *General guidelines on sampling*

US EAS 805, *Use of nutrition and health claims — Requirements*

US ISO 4833-1, *Microbiology of the food chain — Horizontal method for the enumeration of microorganisms — Part 1: Colony count at 30° C by the pour plate technique*

US ISO 6579-1, *Microbiology of the food chain — Horizontal method for the detection, enumeration and serotyping of Salmonella — Part 1: Detection of Salmonella spp*

US ISO 21527-1, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds — Part 1, Colony count technique in products with water activity greater than 0.95*

US ISO 7251, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of presumptive Escherichia coli — Most probable number technique*

US ISO 750, *Fruit and vegetable products — Determination of titratable acidity*

US EAS 104, *Alcoholic beverages — Methods of sampling and test*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply. ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <http://www.iso.org/obp>

### 3.1

#### **cereal grains**

grains of grasses such as wheat, millet, sorghum, oats, or corn, the starchy grains of which are used as food.

### 3.2

#### **fermented (non-alcoholic) cereal beverage**

acidic non alcoholic beverage produced by lactic acid fermentation of milled cereal and/or milled cereal (the fermentation being carried out without the addition of any acid other than lactic acid and with the addition of wheaten products)) and that consists wholly or partially of gelatinized milled cereal acidified by the acids introduced or produced during the lactic acid fermentation process, and that may contain permitted sweeteners, edible protein(s), minerals or vitamins (or a combination of these)

### 3.3

#### **lactic acid fermentation technology**

fermentation process involving the activities of a group of Gram-positive, non-sporing, non-motile, catalase-negative, bacteria, which ferment carbohydrates to produce lactic acid as the sole or major organic acid

## **4 Requirements for raw materials**

### **4.1 General quality factors**

The milled cereal or other raw material used in the production of the fermented (non-alcoholic) cereal beverage shall be clean and sound when examined using sensory attributes and in every way fit for use in the preparation of a product for human consumption.

Where a national standard has been declared for such milled cereal or other raw material, the milled cereal or other raw material shall conform to that national standard.

### **4.2 Essential ingredients for fermented (non-alcoholic) cereal beverages**

The following ingredients shall be used in the preparation of fermented (non-alcoholic) cereal beverages:

- a) cereal flour complying with relevant standards;
- b) sugar;
- c) yeast;
- d) lactic acid culture; and
- e) potable water complying with US EAS 12

## **5 Requirements**

### **5.1 General quality requirements**

5.1.1 Fermented (non-alcoholic) cereal beverages shall be practically free from off-odours and off-flavours when judged using the normal sensory tests.

5.1.2 Fermented (non-alcoholic) cereal beverages shall be practically free from filth (impurities of animal origin, including dead insects) when judged using the normal senses.

5.1.3 Fermented (non-alcoholic) cereal beverages shall be practically free from objectionable matter.

5.1.4 The appearance and consistency of fermented (non-alcoholic) cereal beverages shall be uniform and characteristic of the product.

## 5.2 Essential composition factors

Fermented (non-alcoholic) cereal beverages shall conform to the compositional requirements in Table 1.

**Table 1 — Compositional requirements for fermented cereal beverages**

Characteristic	Requirement	Method of Test
Total solids content, %, (m/m), min	8	Annex A
Acidity, (% m/m, as lactic acid), max	4	US ISO 750
Alcohol content, %, (m/m), max.	0.5	US EAS 104,

## 5.3 Nutrients

Nutrients including vitamins, minerals and specific amino acids may be added to fermented cereal beverages in conformity with the requirements stipulated in national legislation.

## 6 Food additives

Fermented (non-alcoholic) cereal beverages may contain only permitted additives in accordance with US 45

## 7 Contaminants

### 7.1 Heavy metals

The product shall not contain heavy metal contaminants in excess of the limits stipulated in Table 2.

**Table 2 – Limits for heavy metal contaminants fermented (non-alcoholic) cereal beverage**

Contaminant	Maximum limit	Method of test
Arsenic (As), mg/kg	0.05	US ISO 6634
Lead (Pb), mg/kg	0.05	US ISO 6633
Mercury (Hg), mg/kg	0.001	US ISO 6637
Cadmium (Cd), mg/kg	0.003	US ISO 6561-2

### 7.2 Pesticide residues

The product shall comply with those maximum residue limits established by the Codex Alimentarius Commission for this product.

### 7.3 Mycotoxins

The product shall comply with those maximum mycotoxin limits established by the Codex Alimentarius Commission for this product

## 8 Hygiene

Fermented (non-alcoholic) cereal beverages shall be produced and handled in hygienic manner in accordance with US EAS 39. Fermented (non-alcoholic) cereal beverages shall conform to the limits for microbiological contaminants in Table 2

**Table 2 – Microbiological limits for fermented (non-alcoholic) cereal beverages**

Microorganisms	Maximum limit	Method of Test
Total aerobic count, CFU/mL	100	US ISO 4833-1
<i>Escherichia. coli</i> , per mL	Absent	US ISO 7251
<i>Salmonella</i> per 25 mL	Absent	US ISO 6579–1
Yeasts and moulds, CFU/mL	20	US ISO 21527-1

## 9 Packaging

Fermented (non-alcoholic) cereal beverages shall be packaged in food grade containers which will safeguard the hygienic, nutritional, technological, and organoleptic qualities of the product.

## 10 Labelling

10.1 The following information shall appear on the label in accordance to the requirements of US EAS 38:

- a) name of the product, “Fermented (non-alcoholic) cereal beverage”;
- b) list of ingredients;
- c) lot / batch identification number;
- d) date of minimum durability (expiry date)
- e) manufacture date ;
- f) name and physical address of manufacturer;
- g) net content; and
- h) country of origin

10.2 Nutritional labelling, nutrition and health claims may be made in accordance with US EAS 803 and, US EAS 805.

## 11 Sampling

Sampling shall carried out in accordance with US CAC/GL 50



## Annex A (normative)

### Method for determination of total solids content

- A.1** Weigh a suitable size evaporating dish and record the mass  $m_1$ .
- A.2** By means of a measuring cylinder, transfer approximately 25 mL of the test sample to the evaporating dish.
- A.3** Weigh the dish and the test specimen and record the mass  $m_2$ .
- A.4** Heat the dish on a boiling water bath until all the liquid has evaporated, then transfer the dish to an air oven, and dry for 30 min at  $103\text{ °C} \pm 1\text{ °C}$ .
- A.5** Cool in a desiccator.
- A.6** Reweigh the dish and the dried test specimen (residue) and record the mass  $m_3$ . Calculate the total solids content as follows:

$$\text{Total solids content, \% (m/m)} = \frac{m_3 - m_1}{m_2 - m_1} \times 100$$

where

$m_1$  is the mass, in grams, of the dish;

$m_2$  is the mass, in grams, of the dish and specimen; and

$m_3$  is the mass, in grams, of the dish and dried specimen.

## Bibliography

- [1] US 872 *Fermented (non-alcoholic) cereal beverages* — Specification — *First edition*

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## Certification marking

Products that conform to Uganda standards may be marked with Uganda National Bureau of Standards (UNBS) Certification Mark shown in the figure below.

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