



## **EAST AFRICAN STANDARD**

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### **Yoghurt — 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.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. 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 principles and procedures for development of East African Standards.

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.

The committee responsible for this document is Technical Committee EASC/TC 017, *Milk and milk products*.

This fourth edition cancels and replaces the third edition (EAS 33: 2019), which has been technically revised

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## Yoghurt — Specification

### 1 Scope

This Draft East African Standard specifies requirements, sampling and test methods for yoghurt, alternate culture yoghurt and acidophilus milk

### 2 Normative references

The following documents are 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.

CXC 57, *Code of hygienic practice for milk and milk products*

CXS 192, *Codex general standard for food additives*

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

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

EAS 803, *Nutrition labelling — Requirements*

EAS 803, *Nutrition labelling — Requirements*

EAS 804, *Claims on foods — General requirements*

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

ISO 13580, *Yoghurt— Determination of total solids content (Reference method)*

ISO 14501, *Milk and milk powder — Determination of aflatoxin M1 content — Clean-up by immunoaffinity chromatography and determination by high-performance liquid chromatography*

ISO 20128, *Milk products Enumeration of presumptive Lactobacillus acidophilus on a selective medium— Colony-count technique at 37 degrees C*

ISO 22662, *Milk and milk products—Determination of lactose content by high-performance liquid chromatography (Reference method)*

ISO 23318, *Milk, dried milk products and cream—Determination of fat content—Gravimetric method*

ISO 29981, *Milk products—Enumeration of presumptive bifidobacteria—Colony count technique at 37 degrees C*

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

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

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

ISO 6611, *Milk and milk products — Enumeration of colony-forming units of yeasts and/or moulds — Colony-count technique at 25 degrees C*

ISO 6888-1, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) — Part 1: Technique using Baird-Parker agar medium*

ISO 707, *Milk and milk products — Guidance on sampling*

ISO 7889, *Yoghurt — Enumeration of characteristic microorganisms — Colony count technique at 37 degrees C*

ISO 7889, *Yogurt—Enumeration of characteristic microorganisms—Colony-count technique at 37 degrees C*

ISO 8968-1, *Milk and milk products—Determination of nitrogen content—Part 1: Kjeldahl principle and crude protein calculation*

ISO/TS 11869, *Fermented milks — Determination of titratable acidity — Potentiometric method*

ISO/TS 6733, *Milk and milk products — Determination of lead content — Graphite furnace atomic absorption spectrometric method*

### 3 Terms and definitions

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

**3.1 yoghurt**  
cultured milk product obtained by lactic acid fermentation through the action of *Streptococcus thermophilus* and *Lactobacillus delbrueckii subsp. bulgaricus*

**3.2 sweetened yoghurt**  
yoghurt to which sugar and/or non-nutritive sweeteners have been added

**3.3 Plain/natural yoghurt**  
yoghurt produced using appropriate cultures without addition of any other ingredients

**3.4 flavoured yoghurt**  
yoghurt into which permitted flavours, and/or sweeteners, food colours have been added

**3.5 fruit yoghurt**  
yoghurt to which fruits or fruit pulp have been added

**3.6 probiotic yoghurt, alternate culture yoghurt, acidophilus milk**  
Yoghurt, alternate culture yoghurt and acidophilus milk which contain live and beneficial microorganisms in amounts that can confer health benefits

**3.7 alternate culture yoghurt**  
Cultured milk product obtained by lactic acid fermentation through the action of *Streptococcus thermophilus* and *Lactobacillus species*

### 3.8

#### **acidophilus milk**

Cultured milk product obtained by lactic acid fermentation through the action of *Lactobacillus acidophilus*

### 3.9

#### **Greek yoghurt**

yoghurt that has been strained to remove its whey resulting to a thicker and creamy consistency

### 3.10

#### **Greek style yoghurt**

Yoghurt that has been concentrated by addition of milk solids and permitted thickening agents resulting to a thicker and creamy consistency

### 3.11

#### **heat-treated yoghurt**

yoghurt that has been pasteurised, thermized or sterilized after fermentation

### 3.12

#### **Lactose free yoghurt**

yoghurt whose lactose content has been significantly reduced using appropriate methods

### 3.13

#### **Frozen yoghurt**

Yogurt prepared by means of freezing while stirring the product resulting from the fermentation of milk by specific lactic acid producing bacteria

### 3.14

#### **Stirred/drinking yoghurt**

plain or flavoured yoghurt whose coagulum has been broken through stirring or agitation process to obtain a free-flowing product

### 3.15

#### **set yoghurt**

plain or flavoured yoghurt whose coagulum has not undergone any stirring or agitation process

### 3.16

#### **food grade packaging material**

packaging material made of substances which are safe and suitable for their intended use and which will not alter the quality, safety or organoleptic properties of the product

### 3.17

#### **Foreign matter**

any kind of undesirable physical material introduced to a food product at any point in its production, handling, processing or distribution

## **4 Types of yoghurt**

Yoghurt, acidophilus milk and alternate culture yoghurt as presented in the form of either set, stirred/ drinking or frozen, greek, greek style or any other appropriate form may be classified in either of the following types:

- a) Plain/natural yoghurt;
- b) flavoured yoghurt;
- c) heat treated yoghurt;
- d) probiotic yoghurt;
- e) probiotic alternate culture yoghurt;



- f) probiotic acidophilus milk;
- g) fruit yoghurt; and
- h) lactose free yoghurt.

## 5 Categories of yoghurt based on fat content

The categories based on fat content shall be as follows:

- a) whole milk/full cream milk yoghurt;
- b) low fat yoghurt;
- c) fat reduced yoghurt;
- d) fat free yoghurt; and
- e) high fat yoghurt.

## 6 Requirements

### 6.1 Ingredients

#### 6.1.1 Essential ingredients

All yoghurts shall be made from the following ingredients:

- a) milk and milk products which may include any of the following:
  - 1) Raw milk;
  - 2) heat treated milk;
  - 3) reconstituted or recombined; or toned milk;
  - 4) evaporated or condensed milk;
  - 5) pasteurized cream; or
  - 6) a mixture of two or more milk products listed above.
- b) Specific starter cultures
  - 1) yoghurt: cultures of *Lactobacillus delbrueckii subsp. bulgaricus* and *Streptococcus thermophilus*.
  - 2) Alternate culture yoghurt: cultures of *Streptococcus thermophilus* and any *Lactobacillus* species
  - 3) Acidophilus milk: *Lactobacillus acidophilus*

#### 6.1.2 Optional ingredients

6.1.2.1 Ingredients, including but not limited to the following, may be added to all types of yoghurts:

- a) cultures of suitable microorganisms;
- b) milk and cream powder complying with EAS 49;

- c) unfermented butter milk;
- d) concentrated whey;
- e) whey or whey proteins and/or their concentrates;
- f) edible casein and caseinates;
- g) sugars (in sweetened types of yoghurt only), complying with EAS 16, EAS 5, EAS 8, EAS 770, or EAS 749; or
- h) Approved flavouring agents (natural or synthetic) used in accordance with CXG 66 - 2006 or other food ingredients made from preparations such as fruits, vegetables, juices, purees, pulps and preparations, cereals, honey, chocolate, nuts, coffee, spices may be used

**6.1.2.2** Where non-dairy ingredients are used, they shall not be more than 50 % of the total composition.

## 6.2 General requirements

Yoghurt shall:

- a) be free from off odours and off flavours such as metallic flavour or yeast flavour;
- b) be free from foreign matter; and
- c) have the characteristic texture, flavour and taste of the type of yoghurt.

## 6.3 Specific requirements

Yoghurt shall comply with the requirements specified in Table 1 when tested in accordance with the test methods specified therein.

**Table 1 — Specific requirements for yoghurt**

S/N	Characteristic	Requirement					Test method
		Whole milk/full cream milk yoghurt	Fat reduced yoghurt	Low fat yoghurt	Fat free yoghurt	High fat yoghurt	
1.	Milk fat content, %,m/m	3.25 - 4.5	1.51 – 3.24	0.5 – 1.50	< 0.5	4.6 - 15	ISO 23318
2.	Milk solids non-fat, %, m/m, min.	8.5	8.5	8.5	8.5	8.5	ISO 13580
3.	pH	4.0 – 4.6	4.0 – 4.6	4.0 – 4.6	4.0 – 4.6	4.0 – 4.6	Annex A
4.	Titrateable acidity, %,lactic acid, min.	0.6	0.6	0.6	0.6	0.6	ISO/TS 11869
5.	Sum of microorganisms constituting the starter culture, CFU/g in total min <sup>a</sup>	10 <sup>7</sup>	10 <sup>7</sup>	10 <sup>7</sup>	10 <sup>7</sup>	10 <sup>7</sup>	ISO 7889
6.	Labelled microorganisms CFU/g in total min <sup>b</sup>	10 <sup>6</sup>	10 <sup>6</sup>	10 <sup>6</sup>	10 <sup>6</sup>	10 <sup>6</sup>	ISO 29981/ ISO 20128
7.	Milk protein %, minimum	2.7	2.7	2.7	2.7	2.7	ISO 8968-1

8.	[Lactose content <sup>c</sup> :% m/m max]	[0.1]	[0.1]	[0.1]	[0.1]	[0.1]	ISO 22662/AOAC 984.15
<b>a</b>	The requirement on sum of microorganisms and labelled microorganisms do not apply for heat treated yoghurt						
<b>b</b>	Applies where a content claim is made in the labelling that refers to the presence of a specific microorganism other than <i>Lactobacillus delbrueckii subsp. bulgaricus</i> and <i>Streptococcus thermophilus</i> that has been added as supplement to the specific starter culture						
<b>c</b>	Lactose content applies to lactose free yoghurt						

## 7 Hygiene

7.1 Yoghurt shall be produced and handled in accordance with CXC 57 and EAS 39.

7.2 Yoghurt shall comply with microbiological limits in Table 2 when tested in accordance with the test methods specified therein.

**Table 2 — Microbiological limits for yoghurt**

S/No	Microorganism	Maximum limit	Test method
i.	Coliforms, CFU/g, max.	< 10	ISO 4832
ii.	<i>Salmonella spp</i> , in 25 g, max.	Absent	ISO 6579-1
iii.	<i>Staphylococcus aureus</i> , CFU/g, max.	<10	ISO 6888-1
iv.	Yeasts and moulds, CFU/ g, max.	10 <sup>2</sup>	ISO 6611

Note: <10 CFU/g should be interpreted as equivalent to “absent” based on the limit of detection for the method applied

## 8 Food additives

Food additives permitted for yoghurt in CXS 192 may be used

## 9 Contaminants

### 9.1 Pesticide residues

Yoghurt shall comply with maximum limits of pesticides residues set by Codex Alimentarius Commission.

### 9.2 Veterinary drugs residues

Yoghurt shall comply with maximum tolerable residue limits for antibiotics and other veterinary drugs set by Codex Alimentarius Commission in CX/MRL2.

### 9.3 Heavy metals

When tested in accordance with ISO/TS 6733, the level of Lead (Pb) shall not exceed 0.02 mg/kg.

### 9.4 Aflatoxin

When tested in accordance with ISO 14501, the level of aflatoxin M1 shall not exceed 0.5 µg/kg.

## 10 Packaging

Yoghurt shall be packaged in food grade packaging material that safeguards the quality, integrity and safety of the product.

## 11 Labelling

### 11.1 General labelling requirements

In addition to the requirements of EAS 38, the following information shall be provided on the label:

- a) Name of the product shall be either “Yoghurt” or “alternate culture yoghurt” or “acidophilus milk”
- b) Type either “plain/natural” or “flavoured” or “lactose free” or “heat treated yoghurt”; “probiotic yoghurt”, “probiotic alternate culture yoghurt”, or “probiotic acidophilus milk” or “Fruit yoghurt”, or “Lactose free yoghurt”
- c) Category based on fat content as either whole milk/full cream milk or low fat or fat reduced or fat free or high fat
- d) Fat content
- e) For yoghurt, alternate culture yoghurt” or “acidophilus milk labelled as probiotic, the type of beneficial microorganism shall be indicated
- f) The label shall carry the picture of the fruit, nuts, confectionary and their derivatives only when yoghurt contains the real fruit, nuts, confectionary and/or their derivatives.
- g) **[Declaration of lactose content for lactose free yoghurt, alternate culture yoghurt” or “acidophilus milk]**

### 11.2 Nutrition labelling and claims

Nutrition labelling shall be done in accordance with EAS 803. Nutrition and health claims may be used in accordance with EAS 804 and or EAS 805 as appropriate.

## 12 Sampling

Sampling of yoghurt shall be done in accordance with ISO 707.

## **Annex A** (informative)

### **Determination of pH**

#### **A.1 General**

The pH value or hydrogen ion concentration gives a measure of the true acidity of yoghurt. The relationship between pH and acidity of yoghurt is only approximate. In yoghurt the pH ranges from 4.2 to 4.6. The value is reduced by the development of acidity. The pH of yoghurt may be determined rapidly by using the indicator strips.

#### **A.2 Indicator strips**

Indicator paper strips or discs are made by soaking strips of absorbent paper in a suitable indicator and drying them.

A rough estimate of pH is obtained by dipping a strip of the prepared paper in yoghurt and observing the colour. Bromocresol purple (pH range 4 to 7, colour changes from yellow to purple) and bromothymol blue (pH range 4 to 7, colour changes from straw yellow to bluish-green) are commonly used as indicators. Both narrow and wide range ready-made indicator papers are available over the pH range 2.0 to 10.5.

Indicator paper strips shall always be kept in closed containers and under dry conditions.

#### **A.3 pH meter**

The pH meter may be used to determine pH in yoghurt

#### **A.4 Interpretation**

On an average, yoghurt gives a pH of 4.6. Yoghurt of pH over 4.6 should be regarded with suspicion as indication of poor fermentation as a result of starter culture inhibition. pH below 4.2 is as a result of over fermentation.

## Bibliography

- 1) EAS 33: 2019 Yoghurt — Specification (Third edition)

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