



**EAS 352: 2019**

ICS 67.180.10

## **EAST AFRICAN STANDARD**

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**Chewing gum — 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 019, *Sugar and sugar products*.

This third edition cancels and replaces the second edition (EAS 352: 2014), which has been technically revised.

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.



## Chewing gum — Specification

### 1 Scope

This East African Standard specifies the requirements, sampling and test methods for chewing gum.

This standard also applies to bubblegum.

### 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.

AOAC 971.21, *Official Method Mercury in Food Flameless Atomic Absorption Spectrophotometric Method*

AOAC 986.15, *Official Method for determination of Arsenic, Cadmium, Lead, Selenium and Zinc in Human and Pet Foods*

CAC/GL 50, *General guidelines for sampling*

CAC/GL 66, *Guidelines for the use of flavourings*

CAC/GL 75; *Guidelines on substances used as processing aids*

CODEX STAN 192, *General standard for food additives*

EAS 12, *Potable water — Specification*

EAS 38, *Labelling of pre-packaged foods — Specification*

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

ICUMSA GS 47/8/5-2, *Determination of sucrose by gas chromatography in molasses and factory products - official; and cane juice — Tentative*

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

ISO 5377, *Starch hydrolysis products — Determination of reducing power and dextrose equivalent — Lane and Eynon constant titre method*

ISO 5379, *Starches and derived products — Determination of sulphur dioxide content — Acidimetric method and nephelometric method*

ISO 5809, *Starches and derived products — Determination of sulphated ash*

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

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EAS 348 and the following apply.

- 3.1 chewing gum**  
confectionery product made from natural or synthetic gum base, other ingredients and/or food additives
- 3.2 bubblegum**  
type of chewing gum that can form a bubble when filled with air
- 3.3 foreign matter**  
any matter which is not part of the product formulation
- 3.4 gum base**  
food grade, non-nutritive, non-digestible, inert and masticatory substance used to carry sweeteners, flavourings and any other substances in chewing gum

### 4 Requirements

#### 4.1 Ingredients

##### 4.1.1 Essential ingredients

The following ingredients shall be food grade complying with the requirements of the relevant East African standards:

- a) Gum base, and
- b) Sweetening agents

##### 4.1.2 Other ingredients

Any other ingredient shall be food grade and comply with the relevant East African standards.

#### 4.2 General requirements

Chewing gum shall be:

- a) safe and suitable for human consumption,
- b) of a characteristic taste , flavour and chewy, and
- c) free from foreign matter.

#### 4.3 Specific requirements

Chewing gum shall comply with the specific requirements given in Table 1 when tested in accordance with the methods specified therein.

**Table 1 — Specific requirements for chewing gum and bubblegum**

S/N	Characteristic	Requirement		Test method
		Chewing gum	Bubblegum	
i	Moisture, %, m/m, max.	4	4	AOAC 977.10
ii	Sulphated ash, <sup>a</sup> %, m/m, max.	9.5	15	ISO 5809
iii	Acid insoluble ash, %, m/m, max.	7	7	AOAC 975.12
iv	Reducing sugars, <sup>a</sup> %, m/m, min.	4.5	5.5	ISO 5377
v	Sucrose, <sup>a</sup> %, m/m, max.	70	60	ICUMSA GS 4/7/8/5- 2
vi	Gum base, %, m/m, min.	12.5	14.0	Annex A
<sup>a</sup> If sugar based				

Note: The maximum acid insoluble ash for fruit flavoured gums to be 8 %

## 5 Food additives

5.1 Food additives used in chewing gum shall comply with CODEX STAN 192.

5.2 Flavourings shall be used in accordance with CAC/GL 66.

## 6 Processing aids

6.1 Processing aids shall be used in accordance with CAC/GL 75.

6.2 When water is used, it shall comply with EAS 12.

## 7 Contaminants

### 7.1 Heavy metals

Chewing gum shall not contain heavy metals in amounts which may represent a hazard to human health and shall comply with the limits in Table 2 when tested in accordance with the methods specified therein.

**Table 2 — Limits for heavy metal contaminants in chewing gum**

S/N	Heavy metal	Maximum limit mg/kg	Test method
i.	Lead (Pb)	0.5	AOAC 986-15
ii.	Arsenic (As)	1.0	
iii.	Cadmium (Cd)	0.6	
iv.	Mercury (Hg)	0.3	AOAC 971.21



## 7.2 Asbestos

When tested in accordance with Annex B, chewing gum shall not contain asbestos.

## 8 Hygiene

8.1 Chewing gum shall be prepared and handled in a hygienic manner in accordance with EAS 39.

8.2 Chewing gum shall comply with the microbiological limits given in Table 3 when tested in accordance with the methods specified therein.

**Table 3 — Microbiological limits for chewing gum**

S/N	Characteristic	Limit	Test method
i.	Coliforms, cfu/g	< 10	ISO 4832
ii.	<i>Salmonella, spp</i> /25 g	Not detected	ISO 6579-1
iii.	<i>Staphylococcus aureus, /g</i>	Not detected	ISO 6888-3
iv.	Yeast and moulds, cfu/g	< 10	ISO 21527-2

## 9 Packaging

Chewing gum shall be packaged in food grade materials that ensures the integrity and the safety of the product

## 10 Labelling

The packages shall be labelled in accordance with the requirements of EAS 38.

Exemptions specified in 4.7.1 c) of EAS 38 for expiry date do not apply and expiry date shall be given.

## 11 Weights and measures

The weight and fill of chewing gum shall comply with the weights and measures regulations of Partner States or equivalent legislation.

## 12 Sampling

Sampling shall be done in accordance with CAC/GL 50.

## Annex A (normative)

### Determination of gum base content

#### A.1 Preparation of the sample

Take four tablets of chewing gum or bubblegum and clean with a fine hair brush to remove the talc and sugar dust. Cut the sample into small pieces.

#### A.2 Method

Weigh accurately the entire sample and quantitatively transfer the sample into an extraction cartridge. Take 200 ml of chloroform in a tared 250-ml capacity round-bottom flask. Extract the sample for eight hours in a Soxhlet extraction assembly. Subsequently distil off the chloroform in a drying chamber at  $105\text{ °C} \pm 1\text{ °C}$ . Weigh the flask. Continue the process till a constant mass is obtained.

#### A.3 Calculation

Gum base content, expressed as a percentage by mass, shall be calculated as follows:

$$= \frac{M_1 - M_2}{M} \times 100$$

where

$M_1$  is the mass, in grams, of the flask with extracted gum sample,

$M_2$  is the mass, in grams, of the empty flask, and

$M$  is the mass, in grams, of the sample taken for test.

## Annex B (normative)

### Determination of asbestos

The presence of amphiboles and of serpentines is revealed by infrared absorption or by X-ray diffraction (see A and B). If detected, the presence of asbestos is confirmed by optical microscopy.

- A. An absorption band at  $758 \text{ cm}^{-1} \pm 1 \text{ cm}^{-1}$  in the infrared spectrum of a potassium bromide dispersion of the material remaining after ignition of the substance at  $850 \text{ }^\circ\text{C}$  for at least 30 min, indicates the presence of tremolite, an amphibole. Absorption bands or shoulders between  $600 \text{ cm}^{-1}$  and  $650 \text{ cm}^{-1}$  may indicate serpentines.
- B. An X-ray powder diffraction pattern exhibiting diffraction peaks at  $10.5 \pm 0.1^\circ 2\theta$  indicates amphiboles. Peaks at  $24.3 \pm 0.1^\circ 2\theta$  and  $12.1 \pm 0.1^\circ 2\theta$  indicate serpentines.

If amphiboles or serpentines are indicated, examine the sample using optical microscopy to confirm the presence of asbestos. Asbestos is confirmed if the following criteria are met:

- a) a range of length to width ratios of 20:1 to 100:1, or higher for fibres longer than 5  $\mu\text{m}$ ;
- b) capability of splitting into very thin fibrils, and if two or more of the following four criteria are met:
  - (i) parallel fibres occurring in bundles;
  - (ii) fibre bundles displaying frayed ends;
  - (iii) fibres in the form of thin needles; and
  - (iv) matted masses of individual fibres and/or fibres showing curvature.

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