Chewing gum and bubble gum — Specification
Compliance with this standard does not, of itself confer immunity from legal obligations

A Uganda Standard does not purport to include all necessary provisions of a contract. Users are responsible for its correct application.
National 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 representatives of consumers, traders, academicians, manufacturers, government and other stakeholders.

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.


Wherever the words, “East African Standard” appear, they should be replaced by “Uganda Standard.”
FINAL DRAFT EAST AFRICAN STANDARD

Chewing gum and bubble 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.

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.

FDEAS 352 was prepared by Technical Committee EAS/TC 019, Sugar and Sugar confectionery.

This second edition cancels and replaces the first edition (EAS 352:2000), of which has been technically revised.
Introduction

Chewing gum and bubble gum are made from natural or synthetic gum base, sugar and flavouring agents.

Chewing gum and bubble gum are offered to consumers in several forms like candy coated gum, stick or stab gum, toffee shaped double gum and other types common in the market.

This East African Standard is prepared to ensure safety and quality of chewing gum and bubble gum for human consumption.
Chewing gum and bubble gum — Specification

1 Scope

This Final Draft East African Standard specifies the requirements and methods of sampling and testing for chewing gum and bubble gum.

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

EAS 38, Labelling of pre-packaged foods — Specification

EAS 805, Use of nutrition and health claims — Requirements

ICUMSA GS 4/7/8/5-2, Determination of sucrose by gas chromatography in molasses and factory products - official; and cane juice — Tentative

ICUMSA GS 4/3-7, Determination of total reducing sugars in molasses and refined syrups after hydrolysis by the lane and Eynon constant volume procedure — Official (Reference method)

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

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

ISO 6579, Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Salmonella spp

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

ISO 21527-2, Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds — Part 2 — Colony count technique in products with water activity less than or equal to 0.95

3 Terms and definitions

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

3.1 chewing gum
confection made from natural or synthetic gum base containing flavours sweeteners( nutritive or non-nutritive), aroma compounds and any other appropriate additives
3.2 bubble gum
chewing gum with the gum base being strong and elastic enough to stretch and form a bubble when filled with air

3.3 cosmetic function
properties associated with breath freshening, teeth whitening and oral health care and related functions usually associated with approved food additives used such as xylitol

3.4 sugar-free gum
gum whose sweetness is imparted by non-nutritive sweeteners

3.5 functional gum
gum containing other appropriate additives to attach functional properties like nutrition, medical or cosmetic

4 Requirements

4.1 Ingredients

4.1.1 General
All ingredients shall comply with relevant East African Standards. Where no East African Standards exist, Codex Standards shall apply.

4.1.2 Essential ingredients
The following essential ingredients shall be used for the manufacture of chewing gum and bubble gum:

   a) food grade gum base; and
   b) approved sweeteners.

4.1.3 Optional ingredients
In addition to the essential ingredients specified in 4.1.2, the following additional ingredients may also be used.

   a) malt;
   b) milk powder;
   c) chocolate;
   d) coffee;
   e) water, potable;
   f) nutrients like vitamins, minerals, proteins; and
   g) polyols.
4.2 General requirements

4.2.1 The chewing gum and bubble gum product shall:
   a) be safe and suitable for human consumption.
   b) be in any desired shape, size or colour with pleasant taste and flavour.
   c) be free from foreign matter; and
   d) not be brittle or gritty, but smooth and with characteristic chewability.

4.2.2 The sweetening agent in chewing gum or bubble gum shall be a sugar or non-sugar product (sugar free gum). The sugar free gum shall contain artificial or non-nutritive sweeteners instead of sugar to provide sweetness.

4.2.3 Chewing gum or bubble gum may contain other appropriate additives to attach functional properties like nutrition, medical or cosmetic.

4.3 Specific requirements

Chewing gum and bubble gum shall comply with the specific quality requirements specified in Table 1.

Table 1 — Requirements for chewing gum and bubble gum

<table>
<thead>
<tr>
<th>S/N</th>
<th>Characteristic</th>
<th>Requirement</th>
<th>Method of test</th>
</tr>
</thead>
<tbody>
<tr>
<td>i)</td>
<td>Moisture, % by mass, max.</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>ii)</td>
<td>Sulphated ash, (if sugar based), % by mass, max.</td>
<td>9.5</td>
<td>15</td>
</tr>
<tr>
<td>iii)</td>
<td>Acid insoluble ash, % by mass, max.</td>
<td>2.0</td>
<td>3.5</td>
</tr>
<tr>
<td>iv)</td>
<td>Reducing sugars, (if sugar based), % by mass, min.</td>
<td>4.5</td>
<td>5.5</td>
</tr>
<tr>
<td>v)</td>
<td>Sucrose, (if sugar based), % by mass, max.</td>
<td>70</td>
<td>60</td>
</tr>
<tr>
<td>vi)</td>
<td>Gum base, % by mass, min.</td>
<td>12.5</td>
<td>14.0</td>
</tr>
</tbody>
</table>

5 Food additives

Only the food additives permitted in CODEX STAN may be used.

6 Contaminants

6.1 Pesticide residues

Chewing gum and bubble gum shall comply with maximum pesticide residues limits established by the Codex Alimentarius Commission for this commodity.
6.2 Heavy metal

Chewing gum and bubble gum shall be free from heavy metals in amounts which may represent a hazard to human health.

7 Hygiene

Chewing gum and bubble gum shall be prepared and handled in accordance to the EAS 39 and shall comply with microbiological limits specified in Table 3.

<table>
<thead>
<tr>
<th>S/No.</th>
<th>Characteristic</th>
<th>Requirement</th>
<th>Method of test</th>
</tr>
</thead>
<tbody>
<tr>
<td>i)</td>
<td>Yeast and moulds, cfu per g, max</td>
<td>10</td>
<td>ISO 21527-2</td>
</tr>
<tr>
<td>ii)</td>
<td>E. coli, cfu per g</td>
<td>Absent</td>
<td>ISO 7251</td>
</tr>
<tr>
<td>iii)</td>
<td>S. aureus, cfu per g</td>
<td>Absent</td>
<td>ISO 6888-1</td>
</tr>
<tr>
<td>iv)</td>
<td>Salmonella, cfu per 25 g,</td>
<td>Absent</td>
<td>ISO 6579</td>
</tr>
</tbody>
</table>

8 Packaging

8.1 Bubble gum and chewing gum shall be packaged in food grade material which ensures the safety and integrity of the product.

8.2 The fill of bubble gum and chewing gum shall comply with Weights and Measures regulations of Partner States or equivalent legislation.

9 Labelling

9.1 Bubble gum and chewing gum shall be labelled in accordance with requirements specified in EAS 38. In addition, the following shall be legibly and indelibly marked on each outer package:

   a) name and physical address of manufacturer/importer/distributor/packer;
   b) product name as “Chewing gum” or “Bubble gum”;
   c) date of manufacture;
   d) expiry date;
   e) list of ingredients in descending order;
   f) storage instructions (for bags/cartons);
   g) country of origin;
   h) batch/lot number;
   i) net weight in grams (g), kilograms (kg) or number of pieces in the package;
   j) instructions for disposal of the used package; and
   k) declaration of the cosmetic and/or nutritional function if any
9.2 Any nutrition and health claim associated with chewing gum or bubble gum shall conform to EAS .805.

10 Sampling

10.1 General requirements

In drawing, preparing, storing and handling of samples, the following precautions and directions shall be observed.

When sampling for microbiological purposes, the sampling instruments and containers for samples shall be sterilized preferably by dry heat at 170 °C for one hour before use.

Precautions shall be taken to protect the samples, the material being sampled, the sampling instruments and the containers for samples from adventitious contamination.

The samples shall be placed in clean, dry, and moisture-proof containers.

Samples shall be protected from light as far as practicable and shall be stored in a cool and dry place.

10.2 Scale of sampling

10.2.1 All the packages of the same size, type and style which have been manufactured and packaged under essentially the same conditions in a single consignment shall constitute a lot. Samples shall be tested separately for each lot for ascertaining the conformity of the product.

10.2.2 The number of packages to be selected \( n \) from the lot shall depend on the size \( N \) of the lot and shall be in accordance with the formula:

\[
 n = \sqrt[N]{N}
\]

Where

\( n \) is the number of pieces/packages to be selected;

\( N \) is the lot size.

These packages shall be selected at random from the lot; to ensure the randomness of selection a random number table. In case such a table is not available, the following procedure shall be used:

Starting from any package, count them as 1,2,3,...... up to \( r \) and so on in one order, where \( r \) is equal to the integral part of \( N/n \), \( N \) being the total number of packages in the lot and \( n \) the number of packages to be selected. Every \( r \)th package thus counted shall be separated until the requisite number of packages is obtained from the lot to give samples for test.

In case of packages stacked in a pyramidal shape, approximately equal number of packages shall be selected from all exposed sides of the lot, so as to give the required number of sample packages.
Annex A
(normative)

Determination of gum base content

A.1 Preparation of the sample

Take four tablets of chewing gum or bubble gum 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 °C ± 1 °C. Weigh the flask. Continue the process till a constant mass is obtained.

A.3 Calculation

The gum based content shall be expressed as follows:

\[
\text{Gum base content, \% by mass} = \frac{M_1 - M_2}{M}
\]

where

- \(M_1\) mass, in grams, of the flask with extracted gum sample,
- \(M_2\) mass, in grams, of the empty flask, and
- \(M\) mass, in grams, of the sample taken for test.
Annex B
(normative)

Determination of acid insoluble ash

B.1 Reagent

Dilute hydrochloric acid, approximately 5 N (prepared from concentrated hydrochloric acid).

B.2 Procedure

B.2.1 Weigh accurately 20 g of the prepared sample (see A.1) in a tared, clean and dry porcelain dish. Ignite the material in the dish on hotplate for about one hour. Complete the ignition by keeping in the sample material in a muffle furnace at 600 °C ± 20 °C until grey ash results.

B.2.2 Cool in a desiccator. Add 25 mL of this dilute hydrochloric acid to the ash, cover with a watch-glass and heat on a water bath for 10 min. Allow to cool and filter the content of the dish through a ashless filter paper until the washings are free from chlorides. Return the filter and the residue to the dish. Keep it in an air-oven maintained at 105 °C ± 2 °C for 3 h. Ignite in the muffle furnace at 600 °C ± 20 °C for 30 min in the muffle furnace, cool and weigh. Repeat this process of heating for 30 min, cooling and weighing till the difference between two successive weighings is less than one milligram. Record the lowest mass.

B.3 Calculation

Acid insoluble ash content shall be expressed as follows:

\[
\text{Acid insoluble ash, percent by mass} = \frac{100(m_2 - m)}{m_1 - m}
\]

where,

- \(m_2\) is the mass, in grams of the porcelain dish with the acid insoluble ash;
- \(m\) is the mass, in grams of the empty porcelain dish; and
- \(m_1\) is the mass, in grams of the porcelain dish with the prepared sample taken for the test.
Annex C
(normative)

Determination of moisture – Vacuum oven method

C.1 Apparatus

C.1.1 Aluminium dish, 75-mm diameter and about 25 mm height with close fitting cover
C.1.2 Dessicator
C.1.3 Vacuum oven

C.2 Procedure

C.2.1 Accurately weight about 5 g of sample in a dish previously dried and weighed. Distribute the material as evenly as practicable over the bottom of the dish by gentle sidewise movements.
C.2.2 Place dish in vacuum oven, remove cover of the dish and dry the material for 6 h-8 h at 70 °C under 25 mm Hg pressure, during heating admit slow current of air into oven.
C.2.3 Cover dish, transfer to dessicator and weight soon after room temperature is attained.
C.2.4 Re-dry for one hour and repeat the process till the difference between the two successive weighing is less than 2 mg. report percent loss on weight as moisture %.

C.3 Calculation

The moisture content shall be expressed as follows:

\[
\text{Moisture content, } \% \text{ by mass} = \frac{w_1 - w_3}{w_1 - w_2}
\]

where

- \( w_1 \) is the weight, in grams, of dish and sample taken for test;
- \( w_2 \) is the weight, in grams, of empty moisture dish; and
- \( w_3 \) is the weight, in grams, of dish and dried sample.
Bibliography

Indian Standard IS 6747, *Chewing gum and bubble gum*