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**DRAFT EAST AFRICAN STANDARD**

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**Molasses for Industrial use — 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.

DEAS 819 was prepared by Technical Committee EAS/TC 019, *Sugar and sugar confectionery*.

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## Molasses for industrial use — Specification

### 1 Scope

This draft East African Standard specifies requirements, methods of test and sampling for molasses for industrial use.

This standard does not cover molasses as a direct feed for livestock

### 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 38 - labelling of pre-packaged foods- General requirements

AOAC 900.02, ash of sugars and syrups

AOAC 962.37, Density of sucrose solution at 0 - 100°C and 0 - 70 %

ICUMSA GS 4- 7 (2011) ICUMSA GS 4- 7 (2011) Determination of Total Reducing Sugars in Molasses and Refined Syrups after Hydrolysis by the Lane & Eynon Constant Volume Procedure Lane & Eynon Constant Volume Procedure - Official

ISO 4833-1, Microbiology food chain — Horizontal method for enumeration for microorganism — Part 1, colony count at 30 degrees C by the pour plate technique

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 16649 – 2 Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of beta-glucuronidase-positive *Escherichia coli* Part 2: Colony-count technique at 44 degrees C using 5-bromo-4-chloro-3-indolyl beta-D-glucuronide

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 standard, the following terms and definitions shall apply.

#### 3.1 sugar

sucrose obtained from processing of physiologically mature sugar cane or other sources

## 3.2

### molasses

dark, sweet, syrupy by-product made during the extraction of sugars from sugarcane and other sources to which no other material has been added

## 3.3

### extraneous matter

organic matter originating from sugar cane plants and/or their products other than molasses

## 3.4

### foreign matter

organic and inorganic materials ( such as sand, soil, glass) and other extraneous matter in molasses

## 4 Requirements

### 4.1. General requirements

Molasses shall:

- a) have characteristic brown/dark brown colour;
- b) be viscous with a characteristic flavour and smell;
- c) be free from any extraneous matter, adulterants and other harmful constituents;
- d) be free from insects, rodents and their parts; and
- e) be free from foreign matter.

### 4.2 Specific requirements

Molasses shall comply with the specific requirements specified in Table 1.

**Table 1 — Specific requirements for molasses**

| S/N. | Parameters                                      | Requirements | Methods of test                               |
|------|---|--------------|---|
| i    | Standard Brix degree at 20 °C, min.             | 75           | Annex A                                       |
| ii   | Total Invert sugars, % m/m, min.                | 40           | ICUMSA GS 4- 7 (2011)<br>ICUMSA GS 4-3 (2007) |
| iii  | Sulphated ash, % m/m max.                       | 20           | ICUMSA GS 3-11 (2000)                         |
| iv   | Density, g/cm <sup>3</sup> min.                 | 1.30         | AOAC 962.37                                   |
| v    | Loose sludge, %, v/v, max.                      | 20           | Annex B                                       |
| vi   | pH of 10 % solution, m/v                        | 4.0 – 6.0    | Annex C                                       |
| vii  | Sulphur dioxide, as SO <sub>2</sub> , ppm, max. | 400          | ISO 5379                                      |

## **5 Contaminants**

### **5.1. Pesticide residues**

Molasses shall comply with maximum pesticide residues limits established by the Codex Alimentarius Commission.

### **5.2. Heavy metals**

Molasses shall comply with the maximum limits for heavy metals given in CXS 193

## **6. Hygiene**

Molasses shall be prepared and handled in accordance to the EAS 39. When tested in accordance with ISO 21527-2, the total yeast and moulds shall not exceed  $10^3$ .

## **7. Packaging**

Molasses shall be packaged in food grade material which ensures the safety and integrity of the product.

## **8. Weights and measures**

The fill of molasses shall comply with Weights and Measures regulations of Partner States or equivalent legislation.

## **9. Labelling/markings**

a. Molasses in bulk packages shall be accompanied by documentation bearing information as indicated below:

- i. name of the product as “Molasses”;
- ii. name, physical location and address of the manufacturer/distributor/importer;
- iii. net contents by mass in metric units (kg/tonnes);
- iv. country of origin; and
- v. storage instructions.

b. Molasses in non-bulk packages shall be labelled in accordance with EAS 38.

c. In addition to 9.1 tankers (bulk packages) used for transporting molasses shall be conspicuously labelled/marked with the word “Molasses”.

## **10. Sampling**

Molasses shall be sampled in accordance with CXG 50

**Annex A**  
(normative)

**Brix determination**

**Brix determination by spindle method**

Determine the Brix by using an appropriate spindle 30 °C Baume-60 °C Baum. Note the reading and the temperature from the thermometer attached to the base of the spindle. Apply the temperature correction and record the Brix at 20 °C.

**Brix determination by refractometer method**

Using a 50 % sample solution pipette a few mL through the clarity filter rubber teat pipette and pour onto the glass prism cover. Press the read function to take the reading. Multiply the reading by two to get the result.

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**Annex B**  
(normative)

**Determination of loose sludge**

Weigh 270 g of raw molasses and add the following quantity of distilled water X g, where

$X = 6 \times (\text{Brix} - 45)$  g of distilled water at 20 °C.

Adjust the pH to 4.5 using 10 % H<sub>2</sub>SO<sub>4</sub>. Boil for 3 min and allow settling in graduated cones. Note the settled volume after 30 min and express as %, (v/v) loose sludge.

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## Annex C

(normative)

### Determination of pH of 10% Molasses

#### 1. Purpose

To outline the procedure for accurately measuring the pH of a 10% molasses solution.

#### 2. Scope

This applies to pH measurements of molasses solutions

#### 3. Materials and Equipment

- Molasses
- Distilled water
- pH meter (calibrated)
- Beaker (100 mL)
- Stirring rod or magnetic stirrer
- Graduated cylinder or pipette

#### 4. Procedure

##### 4.1 Preparation of 10% Molasses Solution

- Using a graduated cylinder or pipette, measure 10 grams of molasses.
- Transfer the molasses into a beaker.
- Add distilled water to the beaker until the total volume reaches 100 mL.
- Stir the solution thoroughly using a stirring rod or magnetic stirrer until the molasses is fully dissolved.

##### 4.2 pH Measurement

1. **Calibration of pH Meter:**
  - Ensure the pH meter is calibrated using standard buffer solutions (typically pH 4.00, 7.00, and 10.00) according to the manufacturer's instructions.
2. **Measurement:**
  - Rinse the pH electrode with distilled water and gently blot dry with a clean tissue.
  - Immerse the pH electrode in the prepared 10% molasses solution.
  - Wait for the pH meter to stabilize and record the pH value.

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