Edible Water-based ices and mixes — Specification

## TECHNICAL COMMITTEE REPRESENTATION

The following organizations were represented on the Technical Committee:

Kenya Dairy Board

Kevian Kenya Ltd

Excel Chemicals Ltd

RAZCO Ltd

Glacier Products Ltd

Egerton University

Brookside Dairy Ltd

Kenafric Industries Ltd

Capwell Industries

Jomo Kenyatta University

New KCC Ltd

University of Nairobi

Smile Africa Organization

Kenya Bureau of Standards — Secretariat

REVISION OF KENYA STANDARDS

In order to keep abreast of progress in industry, Kenya Standards shall be regularly reviewed. Suggestions for improvements to published standards, addressed to the Managing Director, Kenya Bureau of Standards, are welcome.

© Kenya Bureau of Standards 2022

Copyright. Users are reminded that by virtue of Section 25 of the Copyright Act, Cap. 130 of 2001 of the Laws of Kenya, copyright subsists in all Kenya Standards and except as provided under Section 25 of this Act, no Kenya Standard produced by Kenya Bureau of Standards may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing from the Managing Director.

Edible Water-based ices and mixes — Specification

|  |  |
| --- | --- |
| Kenya Bureau of Standards, Popo Road, Off Mombasa Road, P.O. Box 54974 - 00200, Nairobi, Kenya | |
|  | +254 020 6948000, + 254 722202137, + 254 734600471 |
|  | info@kebs.org |
|  | @KEBS\_ke |
|  | kenya bureau of standards (kebs) |

Foreword

This Kenya Standard was developed by the Technical Committee on water-based flavoured beverages under the guidance of the Standards Projects Committee, and it is in accordance with the procedures of the Kenya Bureau of Standards.

The standard is necessary to cover the several frozen food products in the market intended for consumption in a frozen state. These include non-dairy ice-cream, Iollies and other ices.To ensure that the products available on the market are of good quality and safe, the standard covers the compositional requirements, contaminants and hygiene, among others.

During the preparation of this standard, reference was made to the following documents:

Euroglaces – code for edible ices, version 2013.

Agricultural Product Standards ACT, 1990 (ACT No. 119 OF 1990); Regulations regarding the classification, packing and marking of edible ices intended for sale in the Republic of South Africa.

Acknowledgement is hereby made for assistance derived from these sources.

**Edible Water-based ices and mixes — Specification**

# 1 Scope

This Kenya Standard specifies requirements, sampling and test methods for edible Water-based ices and mixes — Specification Intended for direct consumption or further processing.

**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 999.10, *Official method for lead, cadmium, zinc, copper, and iron in foods atomic absorption spectrophotometry after microwave digestion*

KS CODEX STAN 193, *Codex general standard for contaminants and toxins in foods*

KS CODEX STAN 192, *Codex general standard for food additives*

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

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

KS EAS 803, *Nutrition labelling — Requirements*

KS 1552, *Code of hygienic practice for milk and milk products*

KS ISO 750; *Fruit and vegetable products — Determination of titratable acidity*

KS ISO 3594, *Milk fat — Detection of vegetable fat by gas-liquid chromatography of sterols (Reference method)*

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

KS 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*

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

KS ISO 6888-3, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) — Part 3: Detection and MPN technique for low numbers*

KS ISO 8968-4, *Milk and milk products — Determination of nitrogen content — Part 4: Determination of protein and non-protein nitrogen content and true protein content calculation (Reference method)*

KS ISO 11290-1, *Microbiology of the food chain — Horizontal method for the detection and enumeration of Listeria monocytogenes and of Listeria spp. — Part 1: Detection method*

KS ISO 21528, *Microbiology of the food chain — Horizontal method for the detection and enumeration of Enterobacteriaceae*

KS ISO 21871, *Microbiology of food and animal feeding stuffs — Horizontal method for the determination of low numbers of presumptive Bacillus cereus — Most probable number technique and detection method*

# 3 Product description

## 3.1 Frozen dessert/confection

Frozen and aerated product obtained from an emulsion of edible fat and protein with other permitted ingredients and food additives.

## 3.2 Edible Ice (Water Ice, Lolly (Popsicle and flavoured ice)

## Shall be an edible ice that have been treated by freezing and are intended for storage, sale, and consumption in a frozen or partially frozen state. They may be obtained from the following: water, sugars, permitted acidulants, flavouring and other permitted ingredients and food additives.’’

## 3.3 Ice mix

Shall be the liquid product containing all necessary ingredients in proper amounts so that when frozen, the resulting food conforms to one of the products defined above.

## 3.4 Concentrated ice mix

Shall be the concentrated product which, after the reconstitution with prescribed amount of permitted liquid, results in a product which conforms to ice water, frozen dessert and lolly/Popsicle.

## 3.5 Fruit Ice

Product complying with basic definition of 3.2 and containing fruit content.

## 3.6 Fruit or flavoured Sorbet

Frozen and aerated product complying with definition of 3.2, with fruit or permitted flavours.

## 3.7 Bulky flavours

Shall be flavouring materials or ingredients which have a significant contribution to the weight of the product for example fruit, nut, cocoa products, confectionery etc.

**4 Requirements**

## 4.1 Essential ingredients

All ingredients used shall comply with the relevant Kenya standards.

This may include:

1. Edible fats and oils, other than those derived from milk, for which standards have been elaborated.
2. Edible protein, other than that derived from milk
3. Sugars/ permitted non -nutritive sweeteners
4. Potable Water
   1. **Optional ingredients**

a) Optional fruit characterizing ingredients

1. The fruit or the juice of any mature fruit.
2. The fruit or fruit juice used shall be clean, fresh, frozen, canned, concentrated, or partially or wholly dried.
3. The fruit shall be thickened with pectin or other optional ingredients.
4. The fruit shall have no pits, seeds, skins, and cores.
5. Fruits or fruit juices shall have moisture contents, which is not less than 2.0% in the case of citrus sherbets, 6.0% in the case of berry sherbets, and 10% in the case of sherbets prepared with other fruits.

b) Optional non-fruit characterizing ingredients

These include:

1. Ground spice or infusion of coffee or tea.
2. Chocolate or cocoa, including syrup.
3. Confectionery, honey, sugars/ permitted non -nutritive sweeteners, nuts, liqueur, and salt.
4. Permitted food additives

**4.3 Specific requirements**

The products shall comply with the specific requirements given in Table 1 when tested in accordance with tests methods specified therein.

Table 1 — Specific requirements for edible ices and mixes

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S/N** | **Characteristic** | **Frozen dessert** | **Fruit ice** | **Edible ice (Water ices and lollies/popsicles and flavoured ice)** | **fruit or flavoured sorbet** | **Test method** |
|  | Fat content, % by mass, min. | 3 |  | - | - | KS ISO 3594 |
|  | Fruit content , % by mass, min. | - | 3 | - | 5a | GMP |
|  | Protein, % by mass, min. | 2.2 | - | - | - | KS ISO 8968-4 |
|  | Total Solids, % by mass, min. | 33 | 20 | 10 | 28 | KS ISO 3728 |
|  | Acidity as %, min. | - | 0.20 | 0.20 | 0.20 | KS ISO 750 |
|  | (Overrun) Weight by volume g/l, min | 475 | - | - | 600 | Appendix A |
| a only applicable to fruit sorbet | | | | | | |

# 5 Food additives

Food additives used shall comply with CODEX STAN 192, established by the Codex Alimentarius Commission (CAC).

**6 Hygiene**

## 6.1 General

The products shall be produced and handled in accordance with KS EAS 39.

## 6.2 Microbiological limits

The products shall comply with the microbiological limits given in Table 2 when tested in accordance with the test methods specified therein.

**Table 2 — Microbiological requirements for edible ices and mixes**

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **Micro-organism** | **Limit** | **Test method** |
|  | Total viable count, CFU/g | 3 x 104 | KS ISO 4833-1 |
|  | Total Coliforms, CFU/g | 10 | KS ISO 4832 |
|  | *Listeria monocytogenes,* CFU/25 g | Absent | KS ISO 11290 |
|  | *Salmonella spp,* CFU/25 g | Absent | KS ISO 4833-1 |
|  | *Enterobacteriaceae,* CFU/g | Absent | KS ISO 21528 |
|  | *Bacillus cereus,* CFU/g | Absent | KS ISO 21871 |

## 6.3 Pasteurization requirements

**6.3.1** Regarding mixes, with the exception of water ices, the whole mix except for acids, colours and/or flavours and flavouring substances including ingredients in Clause 4, shall have undergone pasteurization or equivalent heat treatment.

**7 Contaminants**

**7.1 Heavy Metal**

When tested in accordance with AOAC 999.10, the level of Lead (Pb) shall not exceed 0.02 mg/kg and cadmium

**8 Packaging**

The products shall be packed in food grade packaging material that safeguards the integrity and safety of the product.

**9 Labelling**

**9.1** In addition to the labelling requirements of KS EAS 38 and KS EAS 803, the containers shall be legibly and indelibly labelled with the following information:

1. the name of the product shall be as described in Clauses 3; In case of products containing fruits, "name of the fruit" followed by the name of the product. The words "name of fruit or flavoured" may be added to the product;
2. fat content declaration; if applicable
3. net content in SI units;
4. name and physical address of manufacturer;
5. batch or code number;
6. the date of manufacture and expiry date/best before;
7. instruction for storage and use;
8. country of origin; and
9. List of ingredients used in the descending order.

**9. 2** Bulk containers of edible ices shall show the manufacturer’s name and address or assigned code, type of product and flavor statement.

**10 Sampling**

Sampling for the products shall be done in accordance with KS ISO 707.

**Appendix A**

**Determination of Overrun**

The overrun shall be determined by volume as follows;

%overrun= (volume of finished product ꟷ volume of mix used) ×