

**Specification for edible ices and ice mixes**

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## TECHNICAL COMMITTEE REPRESENTATION

The following organizations were represented on the Technical Committee:

Ministry Of Health — Public Health Department  
Government Chemist Department  
Egerton University — Department of Dairy and Food Science Technology  
Kenya Dairy Board  
Kenya Industrial Research and Development Institute (K.I.R.D.I)  
Bio Food Products  
Consumer Information Network  
Eldoville Dairies Limited  
Ministry Of Agriculture, Livestock and Fisheries- State Department of livestock  
Githunguri Dairy  
Razco Foods Ltd.  
Glacier Products  
Sameer Agriculture and Livestock (K) Limited Brookside Dairy LTD  
New Kenya Creameries Cooperative (NKCC)  
Kenya Bureau of Standards — Secretariat

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# **Specification for edible ices and ice mixes**

PUBLIC REVIEW DRAFT

## **KENYA BUREAU OF STANDARDS (KEBS)**

**Head Office:** P.O. Box 54974, Nairobi-00200, Tel.: (+254 020) 605490, 602350, Fax: (+254 020) 604031  
E-Mail: [info@kebs.org](mailto:info@kebs.org), Web: <http://www.kebs.org>

### **Coast Region**

P.O. Box 99376, Mombasa-80100  
Tel.: (+254 041) 229563, 230939/40  
Fax: (+254 041) 229448

### **Lake Region**

P.O. Box 2949, Kisumu-40100  
Tel.: (+254 057) 23549, 22396  
Fax: (+254 057) 21814

### **North Rift Region**

P.O. Box 2138, Nakuru-20100  
Tel.: (+254 051) 210553, 210555

## P R E F A C E

This Kenya Standard was developed by the Milk and milk products Technical Committee under the guidance of the Standards Projects Committee, and it is in accordance with the procedures of the Kenya Bureau of standards.

The first edition of this standard was published in 1999 and amended in 2006 due technical requirements difference in heavy metal contaminants.

The standard has been revised to include other types of frozen food products in the market intended for consumption in a frozen state. These include Frozen Yoghurt, milk shake and frozen dietary dairy desserts. This revised edition also reflects changes in the technical committee representation, re-organization of clauses and inclusion of other reference standards.

The revision led to the removal of Ice cream because it is already covered in KS EAS 70

The standard covers the compositional requirements, contaminants and hygiene, among others.

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

CODEX STAN 137-1981: Edible ices and ice mixes.

Indian Standard 2802:1991- Specification for ice cream.

Sri-Lanka standard 223:1989- Specification for ice cream (1st revision).

KS EAS 70:200, Specification for Dairy milk ices and dairy ice creams (second edition).

Acknowledgement is hereby made for the assistance derived from the above sources.

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**KENYA STANDARD****SPECIFICATION FOR EDIBLE ICES AND ICE MIXES**

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**1. SCOPE**

This Kenya Standard specifies requirements and methods of test for edible ices ready for consumption; and ice mixes for preparation of edible ices in liquid or powder form.

**2. APPLICATION**

This standard covers food products in a frozen state except for products covered by KS 05-36, Specification for dairy ice cream and ice milk.

**3. DEFINITIONS**

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

**3.1 edible ices** — Shall be frozen sweetened food products 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:

- (a) An emulsion of edible fat and protein with the addition of other permitted ingredients and substances.
- (b) A mixture of water, sugars and other permitted ingredients and substances.

**3.2 ice creams** — shall be an edible ice obtained from a heat treated mix, consisting of edible fat and milk solids with or without other permitted ingredients and food additives.

**3.3 frozen dessert or confection** — shall mean an edible ice obtained from an emulsion of edible fat and protein or milk with one or more permitted ingredients and food additives.

**3.4 sherbet** — Also known as sorbet shall be an edible ice obtained from sugar, water, fruit acid, fruit or fruit flavouring and a small amount of milk solids with or without permitted additives.

**3.5 Frozen Yogurt-** Means freezing while stirring a product resulting from the fermentation by specific lactic acid producing bacteria of a pasteurized or ultra pasteurized mixture of milk and other optional ingredients approved for use in ice cream or ice milk in KS EAS 70.

**3.6 Milk shake-** Shall mean a pure, clean, wholesome semi-viscous drink prepared by stirring while freezing a pasteurized mix consisting of sweetener and the ingredients prescribed in 4.1.

**3.7 Frozen Dietary Dairy Dessert-** A food for any special dietary use, prepared by freezing, with or without agitation, composed of a pasteurized mix which may contain milkfat and/or edible vegetable fats or oils, protein, carbohydrates, flavoring, stabilizers, emulsifiers, vitamins and minerals.

**3.8 ice (water ice, lolly, popsicle)** — Shall be an edible ice obtained from sugar, water fruit acid and fruit or fruit flavouring with or without other permitted ingredients and food additives

**3.9 bulky flavours** — shall be flavouring materials or ingredients which have a significant contribution to the weight of the product fruit, nut, cocoa products, confectionery etc.

**3.10 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 definitions in **3.2 – 3.8**

**3.11 concentrated ice mix** — shall be the liquid, concentrated product which, after the addition of the prescribed amount of water, results in a product which conforms to the definition in **3.3**.

**3.12 dried ice mixes** — shall be the dry product with mixture content equal to or less than 4 per cent which, after the addition of the prescribed amount of water, gives a product conforming to the definition in **3.1**.

#### **4 ESSENTIAL COMPOSITION AND QUALITY FACTORS**

**4.1 Permitted Ingredients** — All ingredients used shall comply with the relevant standard.

**4.1.1** (*Milk, Milk Derived Constituents and Milk Products*) — Fresh, concentrated, dried fermented, reconstituted or recombined.

**4.1.2** Edible fats and oils, other than those derived from milk, for which standards have been elaborated.

**4.1.3** Edible protein, other than that derived from milk.

**4.1.4** Sugars, for the purpose of this standard mean, those sugars for which Kenya Standards have been elaborated.

**4.1.5** *Water* — the water shall be of potable quality; conforming to KS 05-459, Specification for drinking water.

**4.1.6** Eggs and pasteurized egg products or egg products, having undergone equivalent to heat treatment.

**4.1.7** Fruit and fruit products.

**4.1.8** Other food ingredients intended to impart flavour, taste or texture, e.g. coffee, ginger, cocoa, honey, nuts, liqueur, confections, salt (sodium chloride) complying with KS 05-229, Specification for edible salt.

**4.2 Compositional Requirements** — Edible ices, excluding coating of non-ice character, shall comply with the following requirements in Table 1

TABLE 1. COMPOSITIONAL REQUIREMENTS

SL NO.	CHARACTERISTICS	FROZEN DESSERTS		FROZEN YOGHURT		SHERBERTS	WATER ICES AND LOLLIES	FROZEN DIETARY DAIRY DESSERTS	MILK SHAKE	METHODS OF TEST
		Plain	Bulky	Plain	Bulky					
(i)	Milk Fat, % by mass, (min.)	–	–	3.25	2.3	1–3	–	3.0%	3.25-6.0	KS ISO 7328 KS ISO 8262
(ii)	Fat included if present., milk fat, % by mass, (min.)	5	4			–	–	-		KS ISO 3594 KS ISO 3595
(iii)	Milk solids, not fat, % by mass, (min.)	–	–			1–3	1–3	-	3,25-6.0	KS EAS70
(iv)	Protein, % by mass, (min.)	2.5	2.2			–	–	-		AOAC 991.20-23.
(v)	Egg yolk solids if declared by mass %	1.4 (min.)	1.4 (min.)	1.12 (Max.)	1.1.2 (Max.)	–	–	-		AOAC 991.20-23.
(vi)	Total Solids, % by mass (min.)	30	28	30	28	10	10	-	10	KS ISO 3728
(vii)	Acidity as %, citric acid (min.)	–	–	–	–	0.35	0.35	-		KS 05-140
viii)	Acidity, expressed as lactic acid, (min.)			0.3				-		KS ISO 11869:1997
(ix)	Weight by volume g/L (min.)	475	475	475	475	475	475	-		KS EAS 70

**4.2.1** *Low fat Edible Ices* — shall have a composition complying with the products above, but with a fat content below the minimum in Table 1.

**4.2.2** *Diabetic Edible Ices* — shall have a composition complying with the above products, but with the sugars replaced with approved non-nutritive sweeteners.

**4.2.3** Nonfruit sherbet- shall have a characteristic fruit flavor, but shall not contain any fruit or fruit juice and shall comply with all requirements of sherbet in table 1

**4.2.4** Frozen dietary dairy desserts- shall contain no sugars other than those naturally present in the milk solids or flavoring agents which have been added.

**4.2.5** Low- fat milk -shake shall comply with all the requirements for milk shakes in table 1, except that it shall contain at least 0.5% and not more than 2% milk fat.

**4.2.6** Frozen lowfat yogurt or lowfat frozen yogurt shall contain at least 0.5% but not more than 2% milkfat and at least 8.25% milk solids not fat, and has a titratable acidity of at least 0.3% expressed as lactic acid

**4.2.7** Frozen nonfat yogurt or nonfat frozen yogurt- shall comply with all the requirements of frozen lowfat yogurt or lowfat frozen yogurt, except that, it shall contain less than 0.5% milkfat

## 5 FOOD ADDITIVES

Food additives usage shall be in compliance with Codex Stan 192; Codex general standards for food additives in, established by the Codex Alimentarius Commission (CAC)

## 6. CONTAMINANTS

### 6.1 Heavy metal

The products covered by this Standard shall comply with the maximum heavy metal contaminants limits in Codex Stan 195, established by the Codex Alimentarius Commission (CAC)

### 6.2 Pesticide Residues.

The products covered by this standard shall comply with the maximum residue limits in 05-1051, Guide on maximum pesticide limits in foods.

## 7. HYGIENE

**7.1** It is recommended that the products covered by the provisions of this standard be prepared in accordance with KS 2194; Good manufacturing practice guidelines for the dairy industry and the Public Health Act Cap. 242 and the Food, Drug and Chemical Substances Act Cap. 254 of the Laws of Kenya.

### 7.2 Microbiological limits

The products shall comply with the following microbiological limits in Table 2:

**Table 2 — Microbiological requirements/ limits**

SL No	Micro-organisms	Maximum limits	Method of test	
i)	Total plate count	50 000/ CFU g	KS EAS 68	
	e.coli			
ii)	Salmonella spp	Absent CFU / 25g	KS ISO 6785	
iii)	L. monocytogenes	Absent/g	Absent CFU /25g	KS ISO 10560
iv)	Moulds and yeasts	10/g	10 CFU/g	KS EAS 68
v)	Staphylococcus aureus	Absent CFU /g	KS ISO 6611	
vi)	Coliforms	10 CFU /g	KS EAS 68	



### **7.3 Pasteurization Requirements**

- 7.3.1** Milk ingredients used in edible ices shall have undergone pasteurization or equivalent heat treatment as indicated by the absence of phosphatase.

Regarding mixes, with the exception of water ices, the whole mix except for acids, colours and/or flavours and flavouring substances including ingredients in **4.1.7** and **4.1.8**, shall have undergone pasteurization or equivalent heat treatment as indicated by the absence of phosphatase.

- 7.3.2** Further pasteurization may not be required for edible ices manufactured from concentrated or dry ingredients by the addition of only potable water, pasteurized milk and flavouring matter, which has been frozen within one hour after the addition of such substances.

## **8. PACKAGING**

- 8.1** Edible ices and ice mixes shall be packed in containers which will safeguard the hygienic and other qualities of the food.

- 8.2** The containers, including packaging material, shall be food grade made only of substances which are safe and suitable for their intended use.

## **9. LABELLING**

In addition to the general provisions of KS EAS 38: Labelling of prepackaged foods; Edible ices and ice mixes shall be labelled with the following information:

- a) The name of the product shall be Edible ice or other names as defined in 3, 4.2.1 -4.2.7
- b) The net volume or net weight in grams or kilograms;
- c) Name and address of the manufacturer, packer or distributor
- e) In the case of mixes, the word "pasteurized" and the date of pasteurization of the mix;
- f) If artificially flavored or colored, a statement that such flavoring and coloring has been added, need to be declared after the name e.g. water ice pineapple flavor, orange flavor e.tc
- g) List of ingredients used in the manufacture of Edible ices, ice mixes and frozen desserts mix
- h) When any Edible ices and ice mixes or frozen desserts are represented for special dietary use by man, it shall be sold only in a container, the label on which shall contain the name of the food and the list of ingredients;
- l) When any Edible ices and ice mixes or frozen desserts are provided to consumers from soft-serve machines, the name of the type of frozen dessert in conjunction with the serving selections offered shall be conspicuously provided to the consumer;
- j) Bulk containers of Edible ices and ice mixes or frozen desserts shall show the manufacturer's name and address or assigned code, type of product and flavor statement;
- k) Country of origin where applicable;
- l) Expiry date

**10. SAMPLING**

- 10.1** Sampling shall be done in accordance to KS ISO 707, Milk and milk products; Guidance on sampling and KS 05-16; Methods of sampling for milk and milk products.
- 10.2** Any package or container of edible ice randomly sampled shall constitute a representative sample of the batch.

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