

**Dairy based desserts — Specification**

Public Review Draft

## **DKS 1517:2021**

### **TECHNICAL COMMITTEE REPRESENTATION**

The following organizations were represented on the Technical Committee:

Agriterra  
Amesi K Ltd.  
Brilliant Dairy Farmers Association  
Brookside Dairy Limited  
Bio foods Ltd  
Coca-Cola Company  
Directorate of Veterinary Services, Ministry of Agriculture, Livestock and Fisheries  
Egerton University  
Glacier Products Ltd.  
Government Chemist's Department  
Jomo Kenyatta University of Agriculture and Technology  
Kenya Accreditation Service  
Kenya Dairy Board  
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## Dairy based desserts — Specification

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## Foreword

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

Dairy based desserts/confections are products obtained by freezing a pasteurized mix prepared from milk and /or other products derived from milk with or without the addition of nutritive sweetening agents, fruit and fruit products, eggs and egg products, coffee, cocoa, chocolate, condiments, spices, ginger and nuts and it may also contain bakery products such as cake or cookies as a separate layer and/or coating. The said product may be frozen hard or frozen to a soft consistency. The product may contain permitted food additives

The standard covers the quality, safety, packaging and labelling requirements of dairy based desserts.

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.



## Dairy based desserts— Specification

### 1 Scope

This Kenya Standard specifies requirements, sampling and test methods for dairy based Desserts intended for direct consumption or further processing as described in Section 3 of this Standard.

This standard does not cover dairy ice cream which is covered in KS EAS 70.

### 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 EAS 12, potable water- specification

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, *General principles for food hygiene*

KS EAS 803, *Nutrition labelling — Requirements*

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

KS ISO 707, *Milk and milk products — Guidance on sampling*

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

KS ISO 2446, *Milk — Determination of fat content*

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

KS ISO 3595, Milk fat — Detection of vegetable fat by the phytosterol acetate test

KS ISO 3728, Ice-cream and milk ice — Determination of total solids content (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*

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KS ISO 5764, *Milk — determination of freezing point — Thermistor cryoscope method (Reference method)*

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 6611, *Milk and milk products - Enumeration of colony forming units of yeasts and/or moulds - Colony-count technique at 25 degrees C*

KS ISO 6731, *Milk, cream and evaporated milk — Determination of total solids content (Reference method)*

KS ISO/TS 6733; *Milk and milk products -- Determination of lead content -- Graphite furnace atomic absorption spectrometric method*

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 8262-3; *Milk products and milk-based foods -- Determination of fat content by the Weibull-Berntrop gravimetric method (Reference method) -- Part 3: Special cases*

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 14501, *Milk and milk powder — Determination of aflatoxin M1 content — Clean-up by immunoaffinity chromatography and determination by high-performance liquid chromatography*

KS ISO 22662, *Milk and milk products — Determination of lactose content by high-performance liquid chromatography (Reference method)*

### 3 Product description

#### 3.1

##### **Dairy desserts**

A food product prepared by freezing, with or without agitation, composed of a pasteurized mix which may contain milk fat and/or edible vegetable fats or oils, protein, carbohydrates, flavoring, stabilizers, emulsifiers, vitamins and minerals

#### 3.2

##### **Ice cream**

A product complying with the basic definition of a dairy dessert being an emulsion typically composed of water and/or milk, edible fats, proteins and sugars, with or without incorporation of air.

#### 3.3

##### **Soft Serve**

Ice cream or related product that is obtained from a soft serve machine without hardening.

#### 3.4

##### **Gelato**

Italian style ice cream that is typically lower in fat and overrun but higher in sugar.

#### 3.5

##### **Sherbet**

Shall be a pasteurized mix consisting of one or more of the optional dairy ingredients specified in sub clause (4.1), one or more of the optional caseinates specified in sub- clause (4.2.3), and non-milk derived ingredients, one or more of the characterizing fruit ingredients specified in sub cause (4.2.2) or one or more of the non-fruit characterizing ingredients specified in sub clause (4.2.4).



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

In order to prevent the curdling of casein in the milk products used in sherbets acid fruit juices and citric acid are not added until the rest of the mixture has been frozen almost to the proper consistency. A sherbet made with the use of sour milk is known as "Lacto". A sherbet containing egg yolk or whole eggs is known as "Souffle".

### 3. 6

**Frozen yogurts** 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 specified in clause (4)

### 3. 7

#### **Milk shakes**

Shall be a pure, clean, wholesome semi-viscous drink prepared by stirring while freezing a pasteurized mix consisting of sweeteners and the ingredients prescribed in cause (4)

### 3. 8

#### **Frozen custard**

Also known as French ice cream or French custard ice cream, shall be a pasteurized mix consisting of one or more of the optional dairy ingredients specified in clause (4.1), one or more of the optional caseinates specified in sub-clause (4.2.3), non-milk-derived ingredients, nutritive sweetener and additional egg yolk solids

### 3. 9

#### **Milk lollies**

Shall be a frozen pasteurized mix obtained from the ingredients prescribed in clause (4), with or without addition of sweeteners, edible flavours and permitted colours

### 3. 10

#### **Milk ice or ice milk**

An ice cream like product with a lower fat content, it's usually sweetened, flavoured and frozen like ice cream.

### 3.11

#### **Light ice cream**

Product made from pasteurized mix consisting of one or more of the optional dairy ingredients specified in clause (4.1), one or more of the optional caseinates specified in sub-clause (4.2.3), fruits in sub clause (4.2.2), nuts or confections, nutritive sweetener and additional egg yolk solids

### 3.12

#### **Milk lollies or milk ice**

Shall be a frozen pasteurized mix obtained from the ingredients prescribed in clause (4), with or without addition of sweeteners, edible flavours and permitted colours

### 3.11

#### **Novelties**

These constitute quiescently frozen dairy confections and frozen confections. Novelty items have different shapes, sizes, and colours. Some novelty items are Eskimo pies and candy or chocolate coated ice cream bars with or without sticks; ice cream sandwiches, slabs of ice cream pressed between biscuits or cookies and wrapped in wax paper and hardened; fudge and other ice-like mixture frozen on sticks

### 3.13

#### **Frozen dairy confection**

Shall be a clean and wholesome frozen product made from water, milk products and sugar, with added harmless natural or artificial flavoring, with or without added coloring, with or without added stabilizer and with or without added emulsifier; and in the manufacture of which freezing has not been accompanied by stirring or agitation (generally known as quiescent freezing).

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### 3.14

**Frozen pudding** shall be a Product made from a pasteurized mix of Milk and milk products, intended to be eaten in the frozen state.

### 3.15

#### **Whipped cream confections**

shall be a food made with milk products, sweetening agents and flavoring agents, with or without harmless coloring or any other safe and suitable ingredients.

## 4 Requirements

### 4.1 Essential Ingredients

This may include:

- (i)
  - a) Cream
  - b) Dried Cream
  - c) Plastic Cream (sometimes known as concentrated milk-fat)
  - d) Sweet cream buttermilk
  - e) Butter
  - f) Butter oil
  - g) Whole Milk
  - h) Concentrated milk
  - i) Evaporated milk
  - j) Sweetened condensed milk
  - k) Dried milk
  - l) Skim milk
  - m) Concentrated skim milk
  - n) Evaporated skim milk
  - o) Sweetened Condensed skim milk
  - p) Nonfat dry milk
  - q) Buttermilk
  - r) Cheese whey
  - s) Whey powders

ii) Sugar complying with KS EAS 16

III) Water complying with KS EAS 12

### 4.2 Optional ingredients

#### 4.2.1

- a) Egg yolks
- b) Egg whites

#### 4.2.2 Optional fruit characterizing ingredients

The fruit or the juice of any mature fruit shall mature

The fruit or fruit juice used shall be clean, fresh, frozen, canned, concentrated, or partially or wholly dried.

The fruit shall be thickened with pectin or other optional ingredients

The fruit shall have no pits, seeds, skins, and cores

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

#### 4.2.3 Optional caseinates

Casein prepared by precipitation with gums  
Ammonium caseinate  
Calcium caseinate  
Potassium caseinate  
Sodium caseinate

The optional caseinates shall contain not less than 20% total milk solids and they may be added in liquid or dry form, but shall be free of excess alkali.

#### 4.2.4 Optional non-fruit characterizing ingredients

These include:

- Ground spice or infusion of coffee or tea.
- Chocolate or cocoa, including syrup.
- Confectionery, honey, sugars, nuts, liqueur, salt

#### 4.2.5 Edible fats and oils

Other than those derived from milk, complying with the relevant Kenya standards for edible fats and oils

#### 4.2.6 Edible protein

Other than that derived from milk

### 4.3 Permitted ingredients

All ingredients used shall comply with the relevant Kenya Standard.

### 4.4 Specific requirements

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

Table 1 — Compositional requirements for dairy based desserts and ice mixes

SL No.	Characteristic	Ice Cream	Soft Serve Mix	Gelato	milk ice/ Ice milk	Frozen yoghurt	Frozen custard	Sherbets	Frozen dairy dessert/ confection/ Novelties	Milk shake	Milk lollies	Test method
i)	Milk fat, % by mass, (min.)	3 %	1.5 %	2 %	2.5 %	3	10%	1.0- 2.0	7.0	3 %	2 %	KS ISO 7328/ KS ISO 8262
ii)	Total fat, milk fat, % by mass, (min.)	8 %, min	3 %	4 – 9 %	-	-	-	-	4	-	-	KS ISO 3594/ KS ISO 3595
iii)	Milk solids, not fat, % by mass, (min.)	10 %	-	-	6 %	8.25	13.0%	1 –3	-	10 %	10 %	KS ISO 3728
iv)	Protein, % by mass, (min.)	3.5 %	-	-	-	-	-	-	3.5	-	3.5 %	KS ISO 8968-4
v)	Egg yolk solids if declared % by mass	1.4%, Min	1.4%, Min	1.4%, Min	-	1.12, Max.	1.4%	-	1.4%, Min	-	-	AOAC 991.20-23
vi)	Total Solids, % by mass, (min.)	36 %, Min	30%	-	11%	28	20 %	2-5	36.0	25 %	20.0 %	KS ISO 3728
vii)	Acidity as %, citric acid, (min.)	-	-	-	-	-	-	0.35 %	-	-	0.3 %	KS ISO 750
viii)	Acidity, expressed as lactic acid, (min).	-	-	-	-	0.3	-	-	-	-	-	KS ISO/TS 11869
ix)	(Overrun) Weight by volume g/L,	475, min.	-	(25 - 65%) 606g/l to 800g/L	-	475, min.	-	475, min	475, min.	-	-	-

Low fat dairy desserts shall have a composition complying with the products above, but with a fat content below the minimum in Table 1.

Non-fruit 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.

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

Frozen low fat yogurt or low-fat frozen yogurt Shall contain at least 0.5 % but not more than 3 % milk fat and at least 8.25 % milk solids not fat, and has a titratable acidity of at least 0.3 % expressed as lactic acid.

Frozen nonfat yogurt or nonfat frozen yogurt Shall comply with all the requirements of frozen low fat yogurt or low fat frozen yogurt, except that, it shall contain less than 0.5 % milk fat.

Medium fat frozen dessert/confection shall contain more than 2.5% but less than 10% milk fat, and not less than 30% total solids

Low fat frozen dessert shall contain not more than 2.5% milk fat, and not less than 26% total solids

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## 6 Food additives

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

## 7 Hygiene

7.1 The product shall be produced and handled in accordance with KS 1552 and KS EAS 39.

7.2 The product 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 dairy based desserts**

S/N	Micro-organism	Limit	Test method
i.	Total viable count, CFU/g	3 x 10 <sup>4</sup>	KS ISO 4833-1
ii.	Total Coliforms, CFU/ g	10	KS ISO 4832
iii.	Escherichia coli, CFU/g	absent	ISO 11866-1
iv.	Staphylococcus aureus (coagulase positive), CFU/ ml	Absent	KS ISO 6888-3
v.	Listeria monocytogenes, per 25g	Absent	ISO 11290-1
vi.	Salmonella spp, CFU/25 g	Absent	KS ISO 6579-1
vii.	Enterobacteriaceae, per g	Absent	KS ISO 21528
viii.	Bacillus Cereus, per g	Absent	KS ISO 21871

### 7.3 Pasteurization requirements

7.3.1 Milk ingredients used in dairy desserts shall have undergone pasteurization or equivalent heat treatment as indicated by the absence of phosphatase.

7.3.2 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 5, shall have undergone pasteurization or equivalent heat treatment as indicated by the absence of phosphatase.

## 8 Contaminants

### 8.1 Pesticide residues

The products shall comply with maximum limits residues set by Codex Alimentarius Commission.

### 8.2 veterinary drug residues

The products shall comply with the maximum residue limits set by the Codex Alimentarius Commission.

### 8.3 Heavy Metal

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

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### 8.4 Mycotoxins

When tested in accordance with KS ISO 14501, the level of aflatoxin M1 shall not exceed 0.50 µg/kg.

## 8 Packaging

Dairy based desserts shall be packed in food grade packaging material that safeguards the integrity and safety of the product.

## 9 Labelling

The containers shall be labelled in compliance with the requirements of KS EAS 38 and KS EAS 803. In addition, the following particulars shall be legibly and indelibly labelled on the container:

- a) The name of the product shall be as defined 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
- b) Milk fat content declaration
- c) net content in SI units;
- d) name and physical address of manufacturer;
- e) batch or code number;
- f) Lot identification
- g) nutritional information;
- h) the date of manufacture and expiry date;
- i) instruction for storage and use; and
- j) Country of origin.
- k) List of ingredients used in the descending order
- l) When any dairy 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;
- m) Bulk containers of edible ices or frozen dairy desserts shall show the manufacturer's name and address or assigned code, type of product and flavor statement;

## 10 Sampling

Sampling for dairy based desserts shall be done in accordance with KS ISO 707.