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EAST AFRICAN STANDARD

Dairy based desserts— 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.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. 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 principles and procedures for development of East African Standards.

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.

The committee responsible for this document is Technical Committee *EASC/TC 017, Milk and milk products.*

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.

Dairy Based Desserts — Specification

1 Scope

This Draft East African Standard specifies the requirements, sampling and test methods for dairy based desserts intended for human consumption.

This standard does not apply to the products covered in 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.

CXC 57*, Code of hygienic practice for milk and milk products*

CXS 192*, General standard for food additives*

EAS 12, *Potable water — Specification*

EAS 16, *Plantation (mill) white sugar — Specification*

EAS 22, *Butter—Specification*

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

EAS 49, *Milk powders and cream powder — Specification*

EAS 5, *Refined white sugar — Specification*

EAS 67, *Raw cow milk—Specification*

EAS 69, *Pasteurized milk—Specification*

EAS 749, *Brown sugars — Specification*

EAS 770, *Fortified sugar— Specification*

EAS 8, *Raw cane sugar — Specification*

EAS 803, *Nutrition labelling — Requirements*

EAS 804, *Claims on foods — General requirements*

EAS 805, *Use of nutrition and health claims — Requirements*

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*

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

ISO 22184, *Milk and milk products — Determination of the sugar contents High performance anion exchange chromatography with pulsed amperometric detection method (HPAEC-PAD)*

ISO 3728, *Ice-cream and milk ice — Determination of total solid content*

ISO 4832, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of microorganisms — Colony Count Technique*

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*

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

ISO 6611, *Milk and milk products — Methods of microbiological examination — Part 3: Enumeration of colony — forming units of yeasts and/or moulds — colony — count technique at 25oC*

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

ISO 7932, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of presumptive Bacillus cereus — Colony-count technique at 30 degrees C*

ISO/TS 6733*, Milk and milk products—Determination of lead content—Graphite furnace atomic absorption spectrometric method*

3 Terms and definitions

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

3.1
dairy
means names, designations, symbols, pictorial or other devices which refer to or are suggestive, directly or indirectly, of milk or milk products

3.2

dairy dessert

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 and emulsifiers.

3.3
Dairy/milk ice
frozen product made from pasteurized milk ice mix by freezing followed by the optional addition ofchocolate, fruits, nuts, or confections

3.4

Ice cream

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

3.5
reduced fat ice cream
type of ice cream with a reduced fat content.

3.6
food grade packaging material
packaging material, made of substances which are safe and suitable for the intended use and which will not impart any toxic substance or undesirable odour or flavour to the product.

3.7

Overrun

amount of air incorporated into the ice cream during manufacture and freezing to ensure the ice cream remains smooth and creamy

3.7
foreign matter
any kind of undesirable physical material introduced to a food product at any point in its production, handling, processing or distribution

3.8
Soft serve*:*

Ice cream or related product that is not hardened.

3.9

Gelato:

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

3.10

Sherbet:

Pasteurized mix consisting of one or more of the optional dairy ingredients specified in 4.1, one or more of the optional caseinates specified in 4.2.3, and non-milk derived ingredients, one or more of the characterizing fruit ingredients specified in 4.2.2 or one or more of the non-fruit characterizing ingredients specified in 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”.

3.11

Milk shake:

A pure, clean, wholesome semi-viscous drink prepared by stirring while freezing a mix consisting of sweeteners and the ingredients in clause 4

3.12

Frozen custard/French ice cream:

Frozen mix consisting of one or more of the optional dairy ingredients specified, one or more of the optional caseinates specified, non-milk-derived ingredients, nutritive sweetener and additional egg yolk solids.

3.13

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.

3.14

Frozen dairy confection:

a clean and wholesome frozen product made from water, milk products and sugar, with added permitted natural or artificial flavouring, with or without added colouring, 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).

3.15

Frozen pudding:

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

3.16

Whipped cream confections:

Food made with milk products, sweetening agents and flavouring agents, with or without permitted coloring or any other safe and suitable ingredients.

3.17

Milk lollies

Frozen pasteurized mix obtained from the ingredients prescribed in Clause 4, with or without addition of sweeteners, edible flavours and permitted colours**.**

4 Ingredients

4.1 Essential Ingredients

The following essential ingredients shall be used and shall comply with relevant standards:

a) Products from milk

i) Dairy cream

ii) Dried cream

iii) Plastic cream (sometimes known as concentrated milk-fat)

iv) sweet cream buttermilk

v) Butter

vi) Butter oil

vii) Whole Milk

viii) Concentrated milk

ix) Evaporated milk

x) Sweetened condensed milk

xi) Dried milk

xii) Skim milk

xiii) Concentrated skim milk

xiv) Evaporated skim milk

xv) Sweetened condensed skim milk

xvi) Non-fat dry milk

xvii) Buttermilk

xviii) Cheese whey

xix) Whey powders

b) Sugar complying with EAS 8, EAS 5, EAS 16, EAS 749, EAS 770

c) Water complying with EAS 12.

4.2 Optional ingredients

4.2.1 Products from eggs

a) Egg yolks

b) Egg whites

4.2.2 Optional fruit characterizing ingredients

4.2.2.1 The fruit or the juice of any mature fruit.

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

4.2.2.3 The fruit shall be thickened with pectin or other optional ingredients.

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

4.2.2.5 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.

4.2.3 Optional caseinates

a) Casein prepared by precipitation with gums.

b) Ammonium caseinate.

c) Calcium caseinate.

d) Potassium caseinate.

e) Sodium caseinate.

f) 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:

a) Ground spice or infusion of coffee or tea.

b) Chocolate or cocoa, including syrup.

c) 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.

5 Requirements

5.1 General requirements

Reduced fat dairy ice cream and dairy ices shall:

a) be homogeneous mixture free from organoleptically detectable ice crystals;

b) be free of any foreign taste or odour not typical to the flavour or ingredients used

c) be free of grittiness;

d) be free from foreign matter

5.2 Specific requirements

Reduced fat dairy ice cream and dairy ices shall comply with specific requirements given in Table 1 when tested in accordance with test methods specified therein.

Table 1 —Specific requirements for dairy based desserts

S/N	Characteristic	Ice cream Reduced fat	ice cream	Soft serve mix	Gelato	Milk ice/ Milk lollies	Frozen custard	Sherbets	Frozen dairy dessert/ confection/ novelties	Milk shake	Test method
i.	Milk fat, % by mass,	>0.5-<3	3-<10	1.5 min	2 min	2 min	10 min	1.0 - 2.0	3-10	3 min	ISO 7328
ii.	Total fat, % by mass, min.	5	8	3	4 – 9	2 min	10 min	1min	8	3 min	ISO 23318
iii.	Milk solids, not fat, % by mass, min.	8	10	8	N/A	6	13.0	1-3	10	10	ISO 3728
iv.	Protein, % by mass, min.	3.0	3.5 %	3.0	N/A	3.5	N/A	N/A	3.5	3.5	ISO 8968-4
v.	Egg yolk solids if declared, % by mass,min	1.4	1.4	1.4	1.4	N/A	1.4	N/A	1.4	N/A	AOAC 991.20-23
vi.	Total Solids, % by mass, min.	26	36	30	-	20	20	2 - 5	36.0	25	ISO 3728
vii.	Overrun %,max	110	110	110	65	110	110	110	110	N/A	Annex A
viii.	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.										

6 Food additives

Food additives permitted in CXS 192 may be used

7 Hygiene

7.1 dairy based desserts shall be produced and handled in accordance with CXC57 and EAS 39

7.2 dairy based desserts shall comply with the microbiological limits given in Table 2 when tested in accordance with the test methods specified therein.

Table 2 — Microbiological limits in Reduced fat dairy ice cream and dairy ices

S/N	Microorganism	Maximum limit	Test method
i.	Total Plate Count, CFU/g	1 x 10^4	ISO 4833-1
ii.	Coliforms, CFU/g	10	ISO 4832
iii.	*Escherichia coli*, CFU/g	<10	ISO 11866-2
iv.	*Salmonella spp*, in 25 g	Absent	ISO 6579-1
v.	*Listeria monocytogenes*, in 25 g	Absent	ISO 11290-1
vi.	*Staphylococcus aureus,* CFU/g	<10	ISO 6888-1
vii.	*Bacillus cereus,* CFU/g	<10	ISO 7932
viii.	Yeasts and moulds, CFU/g	10	ISO 6611

Note: <10 CFU/g should be interpreted as equivalent to “absent” based on the limit of detection for the method applied

8 Contaminants

8.1 Heavy metals

The level of Lead (Pb) shall not exceed 0.02 mg/kg when tested in accordance with ISO/TS 6733.

8.2 Pesticide residues

Reduced fat dairy ice cream and dairy ices shall comply with maximum limits of pesticides residues set by Codex Alimentarius Commission

8.3 Veterinary drugs residues

Low fat dairy ice cream and dairy ices shall comply with maximum tolerable residue limits for antibiotics and other veterinary drugs set by Codex Alimentarius Commission in CX/MRL2.

8.4 Aflatoxin

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

9 Packaging

Reduced fat dairy ice cream and dairy ices shall be packaged in food grade packaging material that safeguards the quality, integrity and safety of the product.

10 Labelling

10.1 General labelling requirements

In addition to the requirements of EAS 38, the following information shall be provided on the label:

a) the name of the product as in table1

b) In case of products containing fruits, chocolate, coffee, cereals, confectioneries etc., "name of the fruit" followed by the name of the product. The words "name of fruit or flavoured" may be added to dairy ice and ice cream, (for example —– "strawberry flavoured reduced fat dairy ice cream" or strawberry flavoured dairy ice”);

c) fat content;

10.2 Nutrition labelling and claims

Nutrition labelling shall be done in accordance with EAS 803. Nutrition and health claims may be used in accordance with EAS 804 and or EAS 805 as appropriate.

11 Sampling

Sampling shall be done in accordance with ISO 707

Annex A
(normative)

Determination of Weight per Unit Volume or Over-run in Ice cream

A.1 General

Over-run is usually defined as the volume of ice-cream obtained in excess of the volume of the mix. It is usually expressed as a percentage. This increased volume is composed mainly of the air incorporated during the freezing process. The amount of air which is incorporated depends upon the composition of mix and the way it is processed. In this test, the volume of water and alcohol used corresponds with the volume of air originally contained in the ice-cream and the difference between the sum of these two and capacity of the flask is equivalent to the volume occupied by the sample

A.2 Apparatus

A.2.1 Beaker: 400 ml**.**

A.2.2 Volumetric flask: 250 ml.

A.2.3 Glass funnel**.**

A.3 Reagent

n-Amyl alcohol (sp. gr. 0.817).

A.4 Procedure

A.4.1 Weigh a unit of ice-cream and from it calculate the weight of ice-cream per litre. For example, 200 ml of a full carton of ice-cream can be obtained, the ice-cream carefully removed and the empty dry carton weighed. The difference in weights between the carton when filled and when empty is, therefore, the weight of 200 ml of frozen ice-cream. Five times this weight would then equal the weight of a litre. To determine the weight of the mix, proceed as below (B):

A.4.2 Weigh and record the exact weight of a clean, dry 400 ml beaker. Into the beaker, weigh exactly 130 g of the frozen ice-cream.

A.4.3 Place the beaker in water bath warmed to 49°C and melt

A.4.4 Weigh and record the exact weight of a 250-ml volumetric flask.

A.4.5 Using a glass funnel, transfer 130 g of melted ice-cream into the 250 ml volumetric flask.

A.4.6 Add exactly 10 g of n-amyl alcohol to the flask and mix to break the surface tension of the melted ice- cream and release the incorporated air. 10 g of n-amyl alcohol occupies a volume of 12.24 ml.

A.4.7 Cool the flask with contents to 15.5°C using a cold water or ice water bath

A.4.8 Rinse the beaker containing melted mix with several small rinsing of water, adding each rinse to the 250 ml flask.

A.4.9 Again cool the flask with contents to 15.5°C and using the final rinse water, bring thevolume to 250 ml mark. The bottom of the meniscus should correspond with the mark when temperature is exactly 15.5°C. Dry the outside of the flask and reweigh.

A.4.10 Calculate the weight in g of the contents. Calculate the weight in g of the water added to the flask. Calculate the volume in ml occupied by the sample of ice-cream. Determine the sp. gr. of the mix by dividing its weight (130 g) by the volume in ml, which it occupied. Determine the weight in g per litre of mix by multiplying by the specific gravity.