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## **DRAFT EAST AFRICAN STANDARD**

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**Milk powders and cream powder — 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, *TC 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.

This third edition cancels and replaces the second edition (EAS 49: 2007), which has been technically revised.



# Milk powders and cream powder — Specification

## 1 Scope

This Draft East African Standard specifies requirements, sampling and test methods for milk powders and cream powder intended for direct human consumption or for 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*

CAC/RCP 1, *General principles for food hygiene*

CAC/RCP 57, *Code of Hygienic Practice for Milk and Milk Products*

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

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

EAS 67, *Raw cow milk — Specification*

EAS 69, *Pasteurized milk — Specification*

EAS 803, *Nutrition labelling — Requirements*

ISO 1736, *Dried milk and dried milk products — Determination of fat content -- Gravimetric method (Reference method)*

ISO 4832, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coliforms — 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 5537, *Dried milk — Determination of moisture content (Reference method)*

ISO 6091, *Dried milk — Determination of titratable acidity (Reference method)*

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 — Enumeration of colony-forming units of yeasts and/or moulds — Colony-count technique at 25 degrees C*

ISO 8156, *Dried milk and dried milk products — Determination of insolubility index*

ISO 8968-1, *Milk and milk products — Determination of nitrogen content — Part 1: Kjeldahl principle and crude protein calculation*

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

ISO 11866-1, *Milk and milk products — Enumeration of presumptive Escherichia coli — Part 1: Most probable number technique using 4-methylumbelliferyl-beta-D-glucuronide (MUG)*

### 3 Terms and definitions

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

#### 3.1

##### **milk powders and cream powder**

milk products which can be obtained by the partial removal of water from milk or cream

#### 3.2

##### **milk retentate**

product obtained by concentrating milk protein by ultrafiltration of milk, partly skimmed milk, or skimmed milk

#### 3.3

##### **milk permeate**

product obtained by removing milk proteins and milkfat from milk, partly skimmed milk, or skimmed milk by ultrafiltration

### 4 Requirements

#### 4.1 Raw materials

Milk powders and cream powder shall be made from cow milk complying with EAS 67, EAS 69 or cream.

**NOTE** The fat and/or protein content of the milk or cream may have been adjusted, only to comply with the specific requirements, by the addition and/or withdrawal of milk constituents in such a way as not to alter the whey protein to casein ratio of the milk being adjusted.

#### 4.2 Ingredients

The following milk products may be used for protein adjustment purposes:

- a) milk retentate;
- b) milk permeate; or
- c) lactose.

#### 4.3 General requirements

The milk powders and cream powder shall:

- a) be uniform in composition
- b) be free from lumps;

- c) be white to creamy;
- d) be of pleasant taste and flavour;
- e) be free from dirt and other extraneous matter.

#### 4.3 Specific requirements

Milk powders and cream powder shall comply with specific requirements given in Table 1 when tested in accordance with test methods specified therein.

**Table 1 — Requirements for milk powders and cream powder**

S/N	Property	Requirement				Test method
		Milk powders			Cream powder	
		Whole milk powder	Partially skimmed milk powder	Skimmed milk powder		
i.	Moisture content*, % by weight, max.	5.0	5.0	5.0	5.0	ISO 5537
ii.	Milk fat, percentage by weight	> 26.0 - < 42	> 1.5 - < 26	≤ 1.5	42	ISO 1736
iii.	Titrateable acidity as lactic acid, ml/100 g powder, max.	18.0	18.0	18.0	18.0	ISO 6091
iv.	Solubility index, min.	1	1	1	1	ISO 8156
v.	Scorched particles, max.	Disc B	Disc B	Disc B	Disc B	Annex A
vi.	Protein content, in milk solid non fat, %, min.	34	34	34	34	ISO 8968-1

\*The moisture content does not include water of crystallization of the lactose; the milk solids-not-fat content includes water of crystallization of the lactose.

#### 4.4 Microbiological limits

Milk powders and cream powder shall comply with the microbiological limits given in Table 2 when tested in accordance with test methods specified therein.

**Table 2 – Microbiological limits for milk powders and cream powder**

S/N	Microorganism	Maximum limit	Test method
i.	<i>Total plate count</i> , CFU/g	50 000	ISO 4833-1
ii.	<i>Coliforms</i> , CFU/g	10	ISO 4832
iii.	<i>E. coli</i> , CFU/g	Absent	ISO 11866-1
iv.	<i>Staphylococcus aureus</i> per g	Absent	ISO 6611
v.	<i>Salmonella spp.</i> per 25 g	Absent	ISO 6579-1
vi.	Yeasts and moulds CFU/g	10	ISO 6611



## **5 Contaminants**

### **5.1 Pesticide residues**

Milk powders and cream powder shall conform to maximum limits residues set by Codex Alimentarius Commission.

### **5.2 Veterinary drugs residues**

Milk powders and cream shall conform to maximum tolerable residue limits for antibiotics and other veterinary drugs set by Codex Alimentarius Commission.

### **5.3 Heavy metals**

The level of Lead (Pb) shall not exceed 0.02 mg/kg when tested in accordance with AOAC 999.10.

### **5.4 Mycotoxin**

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

## **6 Hygiene**

Milk powders and cream powder shall be produced and handled in accordance with CAC/RCP 57 and CAC/RCP 1.

## **7 Food additives**

Food additives may be used and shall comply with CODEX STAN 192.

## **8 Packaging**

Milk powders and cream powder shall be packaged in food grade containers which safeguards the quality of the product

## **9 Labelling**

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

- a) name of the product as per the type of milk powders or “cream powder”;
- b) name and physical address of manufacturer;
- c) net content in SI units;
- d) batch or code number;
- e) list of ingredients;
- f) nutritional information;
- g) a statement “not for infants”;

- h) the date of manufacture and expiry date;
- i) instruction for storage and use; and
- j) country of origin.

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## **Annex A**

### **(normative)**

## **Determination of the burnt particles of milk powder**

### **A.1 Apparatus**

- A.1.1** ADMI-standard picture series for the measurement of the burnt particles
- A.1.2** Top loading balance, readability 10 ml
- A.1.3** Filter unit, vacuum connection preferred (e.g. Presto Silesia, Presto-Elektra Sediment tester)
- A.1.4** Filter paper (e.g. Funke Gerber Neorevamat)
- A.1.5** Erlenmeyer flasks, volume 500 ml

### **A.2 Reagents**

Sodium hexametaphosphate liquid, 2 %

### **A.3 Procedure**

**A.3.1** Mix the sample carefully by repeatedly shaking and inverting the containers. Close the containers immediately after taking the sample for analysis

#### **A.3.2 Determination of burnt particles**

##### **A.3.2.1 Spray dried milk powder**

Weigh 25 g skimmed powder or 32.5 g whole milk powder into an Erlenmeyer flask. Dilute the powder into 250 ml distilled water (temperature 45 °C). The water shall not have visible particles

##### **A.3.2.2 Filter the dilution through the filter paper**

Rinse the Erlenmeyer flask with 50 ml distilled water and filter it also through the filter paper. Dry the filter paper at the temperature of 30 °C to 40 °C in a dustless place

##### **A.3.2.3 Measurement**

Measure the amount of the burnt particles using the ADMI-standard picture series. Grade to A, B, C and D disks

##### **A.3.2.4 Roller dried milk powder**

Weigh 17 g skimmed milk powder and 22 g whole milk powder into an Erlenmeyer flask. Dilute the powder into 250 ml, 2 % sodium-hexametaphosphate liquid (temperature 80 °C) shaking by hands. The rest to be done as explained in A.3.2.2.

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