



## **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, *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 fourth edition (DEAS 49: 2022) cancels and replaces the third edition (EAS 49: 2019), 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 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 39, *Hygiene in the food and drink manufacturing industry — Code of practice*

EAS 67, *Raw cow milk — Specification*

EAS 69, *Pasteurized milk — Specification*

EAS 803, *Nutrition labelling — Requirements*

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

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

ISO 4831, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of coliforms — Most probable number 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 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*

ISO 7251, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of presumptive Escherichia coli — Most probable number technique.*

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*

### 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 obtained by the partial removal of water from milk or dairy 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
- 3.4**  
**foreign matter**  
any kind of undesirable physical material introduced to a food product at any point in its production, handling, processing or distribution
- 3.5**  
**whole milk powder**  
product obtained from the partial removal of water from whole milk or cream. It has a milk fat composition of between 26% and 42% by weight.
- 3.6**  
**partially skimmed /semi-skimmed milk powder**  
product obtained by the partial removal of water from semi-skimmed milk or cream. It has a milk fat composition between 1.5% and 26% by weight
- 3.7**  
**skimmed milk powder**  
product obtained by the partial removal of water from skimmed milk or cream. It has a milk fat composition of less than 1.5% by weight
- 3.8**  
**insolubility index**  
volume, in millilitres, of sediment (insoluble residue) obtained when a dried milk or dried milk product is reconstituted and the reconstituted milk or milk product is centrifuged

## **4 Categories for milk powders**

Milk powders shall be categorized as follows:

- a) whole milk powder;
- b) partially skimmed /semi-skimmed milk powder; and
- c) skimmed milk powder.

## **5 Requirements**

### **5.1 Raw materials**

**5.1.1** Milk powders shall be made from raw cow milk complying with EAS 67 or pasteurized milk complying with EAS 69.

**5.1.2** Cream powder shall be made from dairy 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.

### **5.2 Ingredients**

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

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

### **5.3 General requirements**

The milk powders and cream powder shall be:

- a) uniform in composition;
- b) free from lumps;
- c) white to creamy in colour;
- d) the taste shall be characteristic of milk powders and cream powders; and
- e) free from dirt and foreign matter.

### **5.4 Specific requirements**

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



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

S/N	Characteristic	Requirement				Test method
		Milk powders			Cream powder	
		Whole milk powder	Partially skimmed/semi-skimmed milk powder	Skimmed milk powder		
1.	Moisture content, % by weight, max.	5.0	5.0	5.0	5.0	ISO 5537
2.	Milk fat, %, by weight	> 26.0 - < 42	> 1.5 - < 26	≤ 1.5	42	ISO 1736
3.	Titrateable acidity as lactic acid, ml-0.1 N NaOH/10g-solids-not-fat) max.	18.0	18.0	18.0	18.0	ISO 6091
4.	Insolubility index, (ml) maximum	1	1	1	1	ISO 8156
5.	Scorched particles, max.	Disc B	Disc B	Disc B	Disc B	Annex A
6.	Protein content, in milk solid non-fat, %, min.	34	34	34	34	ISO 8968-1

<sup>a</sup> 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.

## 6 Hygiene

**6.1** Milk powders and cream powder shall be produced and handled in accordance with CAC/RCP 57 and EAS 39.

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

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

S/N	Microorganism	Maximum limit	Test method
1.	Total plate count, CFU/g	1x 10 <sup>4</sup>	ISO 4833-1
2.	Coliforms, MPN/g	10	ISO 4831
3.	Escherichia coli, MPN/ g	Absent	ISO 7251
4.	Staphylococcus aureus, per g	Absent	ISO 6888-3
5.	Salmonella spp, per 25 g	Absent	ISO 6579-1
6.	Yeasts and moulds, CFU/g	10	ISO 6611

## 7 Contaminants

### 7.1 Pesticide residues

Milk powders and cream powder shall comply with maximum residue limits set by Codex Alimentarius Commission (CX/MRL2).

## **7.2 Veterinary drugs residues**

Milk powders and cream shall comply with maximum residue limits for antibiotics and other veterinary drugs set by Codex Alimentarius Commission (CX/MRL2).

## **7.3 Heavy metals**

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

## **7.4 Mycotoxins**

When tested in accordance with ISO 14501, the level of aflatoxin M1 shall not exceed 0.5 µg/kg.

## **8 Food additives**

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

## **9 Packaging**

Milk powders and cream powder shall be packed in food grade packaging material that safeguards the integrity and safety of the product.

## **10 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 “milk powder” or “cream powder”;
- b) category of milk powder as either:
  - i. whole milk powder;
  - ii. partially skimmed/semi-skimmed milk powder; or
  - iii. skimmed milk powder.
- c) name and physical address of manufacturer; packer, distributor, importer, exporter or vendor
- d) net content in SI units;
- e) batch or code number;
- f) list of ingredients;
- g) nutritional information;
- h) a cautionary statement “not for infants”;
- i) date of manufacture and expiry date;
- j) instruction for storage and use; and
- k) country of origin.

- l) Allergens shall be declared

## **11 Sampling**

Sampling shall be done in accordance with ISO 707.

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## **Annex A**

(normative)

### **Determination of the burnt particles**

#### **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

**A.1.4 Filter paper**

**A.1.5 Erlenmeyer flasks**, volume 500 ml

#### **A.2 Reagents**

**Sodium hexametaphosphate liquid**, 2 %

#### **A.3 Procedure**

##### **A.3.1 Introduction**

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 hand. The rest is to be done as explained in A.3.2.2.

## Bibliography

EAS 49: 2019, *Milk powders and cream powder — Specification*

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