
Milk Powders and Cream Powder — Specification



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This African Standard was prepared by ARSO Technical Harmonization Committee on *Milk and Milk Products* (ARSO/TC 04).

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Introduction

Milk is an important dairy product which forms part of the daily meals of majority of people in the world. Powdered milks and cream powder products are widely traded and consumed across the world and in Africa.

This African Standard seeks to lay down requirements for the acceptable production of milk powders and cream powder in order to ensure quality and to safeguard the African consumer. The document also seeks to facilitate harmonization of standards and promote fair trade across the African continent.

Draft African Standard for comments only — Not to be cited as African Standard

Milk Powders and Cream Powder - Specification

1 Scope

This African Standard specifies requirements, sampling and test methods for milk powders and cream powder, intended for direct consumption or further processing.

2 Normative references

The following referenced documents are indispensable for the application 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 - *Lead, Cadmium, Zinc, Copper and iron in foods. Atomic absorption spectrophotometry after microwave digestion*

ARS 53 - *General principles of food hygiene — Code of practice*

ARS 56 - *Pre-packaged foods — Labelling*

CXS 192 - *General Standard for Food Additives*

CXS 193 - *General Standard for Contaminants and Toxins in Food and Feed*

CXS 234 - *Recommended methods of analysis and sampling*

ISO 4832 - *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coliforms — Colony-count 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 7251 - *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of presumptive Escherichia coli — Most probable number technique*

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

ISO 19020 - *Microbiology of the Food Chain — Horizontal Method for the Immunoenzymatic Detection of Staphylococcal Enterotoxins in Foodstuffs*

3 Terms and definitions

For the purpose of this standard the following definitions apply:

3.1

milk

the normal mammary secretion of milking animals obtained from one or more milkings without either addition to it or extraction from it, intended for consumption as liquid milk or for further processing.

3.2

milk powder or cream powder

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

3.3

milk retentate

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

3.4

milk permeate

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

3.5

lactose

a natural constituent of milk normally obtained from whey with an anhydrous lactose content of not less than 99.0% m/m on a dry basis. It may be anhydrous or contain one molecule of water of crystallisation or be a mixture of both forms

4 Requirements

4.1 Raw materials

4.1.1 Essential raw materials

Milk and cream

NOTE: The fat and/or protein content of the milk or cream may have been adjusted, only to comply with the compositional requirements in Clause 4 of this Standard, 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.

4.1.2 Optional raw materials

- a) Milk retentate
- b) Milk permeate
- c) Lactose

NOTE: These milk products are allowed for protein adjustment purposes only.

4.2 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) of pleasant taste and flavour
- e) free flowing; and
- f) free from dirt and foreign matter.

4.3 Compositional requirements

4.3.1 Milk and cream powders shall be categorized as follows, in accordance with the requirements given in Table 1:

- a) cream powder;
- b) whole milk powder;
- c) partly skimmed milk powder; and
- d) skimmed milk powder

Table 1: Compositional requirements for milk and cream powders

	Cream powder, m/m	Whole milk powder, m/m	Partly skimmed milk powder, m/m	Skimmed milk powder, m/m	Methods for testing
Milk fat	Min 42%	Min 26% and less than 42%	More than 1.5% and less than 26%	Max 1.5%	Refer to CXS 243
Moisture^(a), maximum	5%	5%	5%	5%	
Milk protein in milk solids-not-fat^(a), minimum	34%	34%	34%	34%	
(a) 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.					

4.3.2 Additional requirements for the quality of milk powders are given in Annex A of this African Standard.

5 Food Additives

Food additives conforming to Category 01.5.1 and its parent categories and Table 3 of CODEX STAN 192 may be used and only within the limits specified therein.

6 Contaminants

6.1 Heavy metals

The products covered by this African Standard shall comply with those maximum limits for metal contaminants specified in CODEX STAN 193 and in particular those listed in Table 2.

Table 2 — Metal contaminants

S/N	Parameter	Limit (mg/kg max)	Test method
(1)	Lead (Pb)	0.02	AOAC 999.11 or AOAC 999.10

6.2 Mycotoxins

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

6.3 Pesticides residues

Pesticide residue limits shall be in accordance with limits set by the Codex Alimentarius Commission for the product.

6.4 Veterinary drug residues

Veterinary drug residue limits shall be in accordance with limits set by the Codex Alimentarius Commission for the product.

7 Hygiene

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The products covered by this African Standard shall be produced, prepared and handled in accordance with the provisions of the appropriate sections of ARS 53.

Milk and cream powders shall be free from microorganisms and products originating from microorganisms in amounts which may represent a hazard to human health.

When tested by appropriate methods, milk and cream powders shall conform to the limits specified in Table 3.

Table 3 – Microbiological limits

Microorganism	Permissible limit	Test method
Salmonella	Absent in 25 g	ISO 6579-1
E. coli, per g	Absent	ISO 7251
Coliforms, cfu/g	<10	ISO 4832
Staphylococcal enterotoxins	Not detected in 25 g	ISO 19020

8 Labelling

8.1 Labelling of retail containers

In addition to the provisions of the ARSO Standard ARS 56, the following specific provisions apply:

a) Name of product

- The name of the product shall be in accordance with the composition specified in Table 1 as follows:
 - Cream powder;
 - Whole milk powder;
 - Partly skimmed milk powder; or
 - Skimmed milk powder.

Partly skimmed milk powder may be designated “semi-skimmed milk powder” provided that the content of milkfat does not exceed 16 % m/m and is not less than 14 % m/m.

“Whole milk powder” may be designated “full cream milk powder” and “skimmed milk powder” may be designated “low fat milk powder”.

b) List of ingredients:

- i) The milkfat content shall be declared as a percentage by mass;
- ii) The milk protein content shall be declared as a percentage by mass;
- iii) Milk products used only for protein adjustment need not be declared.

c) Net content in S.I. units

d) Name and address of manufacturer/ distributor/ packer

e) Country of origin

f) ‘Best before date’ (dd/mm/yy) and storage instructions

g) Batch number or lot identification

- h) Instructions for use

8.2 Labelling of non-retail containers

Information required in sub-clause 9.1 of this African Standard and, if necessary, storage instructions, shall be given either on the container or in accompanying documents, except that the name of the product, lot identification, and the name and address of the manufacturer or packer shall appear on the container. However, lot identification, and the name and address of the manufacturer or packer may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

9 Packaging

A container or outer container in which the Milk powder or Cream powder is packed shall:

- (a) be made from a material that :
 - (i) is suitable for this purpose;
 - (ii) will protect the contents thereof from contamination; and
 - (iii) will not impart any undesirable flavour or taste to the contents thereof;
- (b) be so strong that it will not be damaged or deformed during normal storage, handling and transport practices;
- (c) in the case of a container that is re-used, be thoroughly cleaned and sterilized before the Milk powder or Cream powder is packed therein;
- (d) be intact; and
- (e) be closed properly in a manner permitted by the nature thereof.

10 Methods of Sampling and Analysis

For checking the compliance with this standard, the methods of analysis and sampling specified in CXS 234 relevant to the provisions in this standard, shall be used.

Annex A
(informative)

Additional quality

The additional information below does not affect the provisions in the preceding sections which are those that are essential to the product identity, the use of the name of the food and the safety of the food.
Additional quality factors

	Whole milk powder	Partially skimmed milk powder	Skimmed milk powder	Method
Titrateable acidity (ml-0.1 N NaOH/10 g-solids-not-fat)	max 18.0	max 18.0	max 18.0	CODEX STAN 234-1999
Scorched particles	max Disc B	max Disc B	max Disc B	CODEX STAN 234-1999
Solubility index (ml)	max 1.0	max 1.0	max 1.0	CODEX STAN 234-1999

Bibliography

CXS 207-1999 Standard for Milk Powders and Cream Powder

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