**Blend of Skimmed Milk and Vegetable Fat in Powdered form — Specification**

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#### Foreword

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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**

Skimmed milk is an important dairy product that forms part of the daily meals of majority of people in the world. Blend of skimmed milk and vegetable fat in powdered form is a product widely traded and consumed across the world and in Africa.

This African Standard seeks to lay down requirements for the acceptable production of a blend of skimmed milk and vegetable fat in powdered form in order to ensure quality and to safeguard the health of the consumer. The document also seeks to facilitate harmonization of standards and promote fair trade for the product consumed across the African continent and the world at large.

## AFRICAN STANDARD

**Blend of Skimmed Milk and Vegetable Fat in Powdered form - Specification**

1 Scope

This African Standard specifies requirements, sampling and test methods for a blend of skimmed milk and vegetable fat in powder form or reduced / medium fat blend variety, intended for direct consumption or for further processing.

**2 Normative references**

The following referenced documents are indispensable for the application of this Standard. 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*

WD-ARS XXX - *Glossary of Dairy Terms*

CXG 9 – *General Principles for the Addition of Essential Nutrients for Food*

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 14501:2021 | IDF 171:2021-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**

**blend of skimmed milk and vegetable fat in powdered form**

a product prepared by the partial removal of water from milk constituents with the addition of edible vegetable oil, edible vegetable fat or a mixture thereof, to meet the compositional requirements in Clause 4 of this Standard

**3.2**

**vegetable fat**

fat of vegetable origin that is obtained naturally from plants or hydrogenation of a vegetable oil

**3.3**

**milk retentate**

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**

1. Skimmed milk and Skimmed milk powders
2. Other non-fat milk solids
3. Edible vegetable oils/fats
4. Potable water

**4.1.2 Optional raw materials**

1. Milk retentate
2. Milk permeate
3. Lactose

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

4.2 Permitted nutrients

Where allowed in accordance with CXG 9, maximum and minimum levels for Vitamins A, D and other nutrients, where appropriate, should be laid down by national legislation in accordance with the needs of individual country including, where appropriate, the prohibition of the use of particular nutrients.

4.3 General requirements

Blend of skimmed milk and vegetable fat in powdered form shall be:

1. uniform in appearance;
2. free from lumps;
3. free flowing;
4. white to creamy in colour;
5. characteristic and free from free from off flavour;
6. of a pleasant taste; and
7. free from dirt and foreign matter.

4.4 Compositional requirements

4.3.1 Blend of skimmed milk and vegetable fat in powdered form shall be categorized as follows, in accordance with the requirements given in Table 1:

1. Blend of skimmed milk and vegetable fat in powdered form; and
2. Reduced/medium fat blend of skimmed milk and vegetable fat in powdered form

**Table 1 - Compositional requirements for blends of skimmed milk and vegetable fat in powdered form**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Blend of skimmed milk and vegetable fat in powdered form,**  **m/m** | **Reduced/medium fat blend of skimmed milk and vegetable fat in powdered form,**  **m/m** | **Methods for testing** |
| **Total Fat** | 26% min | More than 1.5% and less than 26% | Refer to CXS 234 |
| **Moisture(a)** | 5% max | 5% max |
| **Milk protein in milk solids-not-fat(a), minimum** | 34% | 34% |
| (a) The milk solids-not-fat content includes water of crystallization of the lactose. | | | |

5 Food Additives

Only those additive classes indicated as justified in the table below may be used for the products covered by this Standard. Acidity regulators, anticaking agents and antioxidants used in accordance with Tables 1 and 2 of CXS 192 in food category 01.5.2 (Milk and cream powder analogues), and only certain acidity regulators, anticaking agents, emulsifiers and stabilizers in Table 3 are acceptable for use in products conforming to this Standard.

**Table 2 – List of additive functional class justified for use in blend of skimmed milk and vegetable fat in powdered form**

|  |  |
| --- | --- |
| **Additive functional class** | **Justified use** |
| Colours | - |
| Bleaching agents | - |
| Acidity regulators | x |
| Stabilizers | x |
| Thickeners | - |
| Emulsifiers | x |
| Antioxidants | x |
| Preservatives | - |
| Foaming agents | - |
| Anticaking agents | x |
| Packaging gas | - |

X The use of additives belonging to the class is technologically justified.

– The use of additives belonging to the class is not technologically justified.

6 Contaminants

6.1 Heavy metals

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

**Table 3 — Metal contaminants**

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Maximum Limit**  **(mg/kg)** | **Test method** |
| 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 covered by this Standard.

6.4 Veterinary drug residues

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

7 Hygiene

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.

Blend of skimmed milk and vegetable fat in powdered form 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, blend of skimmed milk and vegetable fat in powdered form shall conform to the limits specified in Table 3.

**Table 4 – Microbiological limits**

|  |  |  |
| --- | --- | --- |
| **Microorganism** | **Permissible limit** | **Test method** |
| *Salmonella* | Absent in 25 g | ISO 6579-1 |
| *E. coli,* | Absent per g | ISO 7251 |
| Coliforms, | <10 cfu/g | 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 ARS 56, the following specific provisions apply:

**8.1.1 Name of the food**

The name of the food shall be:

* Blend of Skimmed Milk and Vegetable Fat in Powdered Form; or
* Reduced/medium Fat Blend of Skimmed Milk and Vegetable Fat in Powdered Form.

Other names may be used if allowed by national legislation in the country of retail sale.

**8.1.2 Declaration of total fat content**

The total fat content shall be declared in a manner found acceptable in the country of sale to the final consumer, either

1. as a percentage by mass, or
2. in grams per serving as quantified in the label provided that the number of servings is stated.

A statement shall appear on the label as to the presence of edible vegetable fat and/or edible vegetable oil. When required by the country of retail sale, the common name of the vegetable from which the fat or oil is derived shall be included in the name of the food or as a separate statement.

**8.1.3 Declaration of milk protein**

The milk protein content shall be declared in a manner acceptable in the country of sale to the final consumer, either

1. as a percentage by mass, or
2. in grams per serving as quantified in the label provided that the number of servings is stated.

**8.1.4 List of ingredients**

Notwithstanding the provision of ARS 56, milk constituents used only for protein adjustment need to be declared.

All ingredients shall be declared.

**8.1.5 Advisory statement**

A statement shall appear on the label to indicate that the product should not be used as a substitute for infant formula. For example, “NOT SUITABLE FOR INFANTS” or a similar statement that carries the same meaning.

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 Blend of skimmed milk and vegetable fat in powdered form 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 Blend of skimmed milk and vegetable fat in powdered form 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 contained in CXS 234 relevant to the provisions in this Standard, shall be used.

Bibliography

CXS 251-2006 Standard for a blend of skimmed milk and vegetable fat in powdered form

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