
Chocolate & chocolate products — specification



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Foreword

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This African Standard was prepared by ARSO/TC 06, *Technical Committee on Coffee, Cocoa, Tea and Related Products*.

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Introduction

This African standard has been developed by Technical Committee TC 06 Cocoa, Coffee, Tea and related products".

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

Chocolate and Chocolate Products — Specification

1. Scope

This African Standard specifies the requirements, sampling and test methods for chocolate and chocolate products intended for human consumption.

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 Official Method 931.04, Moisture in Cacao Products

AOAC Official Method 963.15, Fat in Cacao Products Soxhlet Extraction

CAC/RCP 1-1969, Rev 3-1997 International Code of Practice – General Principles of Food Hygiene

CAC/GL 21 – 1997, *Principles for the Establishment and Application of Microbiology in Foods*

CAC/GL 66 *Guidelines for The Use of Flavours*

CAC/GL 75 *Guidelines on Substances Used As Processing Aids*

CODEX STAN 87-1981, Rev. 1 - 2016), Standard for Chocolate and Chocolate Products

CODEX STAN 1-1985, Rev 1-1991- *Food Labelling of Packaged Foods*

Codex Stan 192 - 1995, Codex Alimentarius Commission General Standard for Food Additive Addendum (Revised 19 - 2019)

ISO 4833-1, Microbiology of the food chain - Horizontal method for the enumeration of microorganisms — Part 1: Colony count at 30 °C by the pour plate technique

ISO 21527-2, Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds — Part 2: Colony count technique in products with water activity less than or equal to 0,95

ISO 21528-1 Microbiology of the food chain — Horizontal method for the detection and enumeration of Enterobacteriaceae — Part 1: Detection of Enterobacteriaceae

ISO 6579:2002, Microbiology of food and animal feeding stuffs - Horizontal method for the detection of Salmonella spp.

ISO 16649-1 *Microbiology of the food chain — Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli — Part 1: Colony-count technique at 44 degrees C using membranes and 5-bromo-4-chloro-3-indolyl beta-D-glucuronide*

ISO 16649-2, Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli — Part 2: Colony-count technique at 44°C using 5-bromo-4-chloro-3-indolyl beta-D-glucuronide.

CXS 193 General Standard for contaminants and toxins in food and feed

Codex Pesticide Residue in food online database

ISO 4833-1 Microbiology of the food chain — Horizontal method for the enumeration of microorganisms — Part 1: Colony count at 30 °C by the pour plate technique

ISO 21528-1 Microbiology of the food chain — Horizontal method for the detection and enumeration of Enterobacteriaceae — Part 1: Detection of Enterobacteriaceae

ISO 21527-2 Microbiology of the food chain — Horizontal method for the detection and enumeration of Enterobacteriaceae – Part 2: Colony-count technique

ISO 6579 Microbiology of the food chain — Horizontal method for the detection, enumeration and serotyping of Salmonella – Part 4: Identification of monophasic Salmonella Typhimurium (1,4,[5],12:i:-) by polymerase chain reaction (PCR)

ISO 16649-1 Microbiology of the food chain — Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli — Part 1: Colony-count technique at 44 degrees C using membranes and 5-bromo-4-chloro-3-indolyl beta-D-glucuronide

ISO 16649-2 Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli — Part 2: Colony-count technique at 44 degrees C using 5-bromo-4-chloro-3-indolyl beta-D-glucuronide

3. Terms and Definitions

3.1 Chocolate

the generic name for the homogenous products obtained by an adequate manufacturing process from cocoa (*Theobroma cacao* L) materials (cocoa nib, cocoa mass, cocoa press cake or cocoa powder and cocoa butter), which may be combined with milk products, sugars and/or sweeteners, and other additives. Chocolate may also be referred to as bittersweet chocolate, semi-sweet chocolate/ dark chocolate or “chocolate fondant”

3.2 Chocolate product

any food item containing chocolate as a primary ingredient. It includes items like bars, chips, powders, and confections such as truffles and pralines.

3.3 Milk solids

milk ingredients in their natural proportions, except that milk fat may be added, or removed

3.4 Chocolate Vermicelli and Chocolate Flakes

chocolate vermicelli and chocolate flakes are cocoa products obtained by a mixing, extrusion and hardening technique which gives unique, crisp textural properties to the products. Vermicelli are presented in the form of short, cylindrical grains and flakes in the form of small flat pieces.

3.5 Filled Chocolate

It is a product covered by a coating of one or more of the Chocolates defined in clause 4.2 and 4.3, with exception of chocolate a la taza, chocolate familiar a la taza and products defined in clause 4.3.4 (chocolate para mesa), the centre of which is clearly distinct, through its composition, from the external coating. Filled Chocolate does not include Flour Confectionery, Pastry, Biscuit or Ice Cream products.

4 Requirements

4.1 Requirements for Chocolate

4.1.1 Chocolate shall contain, on a dry matter basis, not less than 35% total cocoa solids, of which not less than 18% shall be cocoa butter and not less than 14% fat-free cocoa solids.

4.2 Requirements for Chocolate products by composition:

4.2.1 Chocolate a la taza

In addition to basic chocolate requirements in 4.1.1, chocolate a la taza shall contain a maximum of 8% m/m flour and/or starch.

4.2.2 Sweet Chocolate

Shall contain, on a dry matter basis, not less than 30% total cocoa solids by mass of which at least 18% by mass, shall be cocoa butter and at least 12% by mass, fat-free cocoa solids

4.2.2.1 Chocolate familiar a la taza

Shall contain a maximum of 18% m/m flour and/or starch.

4.2.2.2 Couverture Chocolate

Shall contain, on a dry matter basis, not less than 35% by mass, total cocoa solids of which not less than 31% by mass, shall be cocoa butter and not less than 2.5% by mass, of fat-free cocoa solids.

4.2.3 Milk Chocolate

Shall contain, on a dry matter basis, not less than 25% by mass, cocoa solids (including a minimum of 2.5% by mass, fat-free cocoa solids) and a specified minimum of milk solids between 12% and 14% by mass, (including a minimum of milk fat between 2.5% by mass, and 3.5% by mass,).

(Where required by the competent authority, a minimum content of cocoa butter plus milk fat may also be set)

4.2.4 Family Milk Chocolate

Shall contain, on a dry matter basis, not less than 20% by mass, cocoa solids (including a minimum of 2.5% by mass, fat-free cocoa solids) and not less than 20% by mass, milk solids (including a minimum of 5% by mass, milk fat). **(Where required by the competent authority, a minimum content of cocoa butter plus milk fat may also be set)**

4.2.5 Milk Chocolate Couverture

Shall contain, on a dry matter basis, not less than 25% by mass, cocoa solids (including a minimum of 2.5% by mass, non-fat cocoa solids) and not less than 14% by mass, milk solids (including a minimum of 3.5% by mass, milk fat) and a total fat of not less than 31% by mass.

4.3 Requirements for Other chocolate products

4.3.1 White Chocolate

White Chocolate shall contain, on a dry matter basis, not less than 20% by mass, cocoa butter and not less than 14% by mass, milk solids (including a minimum milk fat in a range of 2.5% to 3.5% by mass, as applied by the authority having jurisdiction in accordance with applicable legislation).

4.3.2 Gianduja Chocolate/Chocolate Spread

“Gianduja” (or one of the derivatives of the word “Gianduja”) Chocolate is the product obtained, firstly, from chocolate having a minimum total dry cocoa solids content of 32%, by mass, including a minimum dry non-fat cocoa solids content of 8%, by mass, and, secondly, from finely ground hazelnuts such that the product contains not less than 20 % by mass, and not more than 40% by mass, of hazelnuts.

The following may be added:

- a) milk and/or dry milk solids obtained by evaporation, in such proportion that the finished product does not contain more than 5% by mass, dry milk solids ;
- b) almonds, hazelnuts and other nut varieties, either whole or broken, in such quantities that, together with the ground hazelnuts, they do not exceed 60% by mass, of the total weight of the product.

4.3.3 Gianduja Milk Chocolate

“Gianduja” (or one of the derivatives of the word “Gianduja”) Milk Chocolate is the product obtained, firstly, from milk chocolate having a minimum dry milk solids content of 10% by mass, and, secondly, from finely ground hazelnuts such that the product contains not less than 15 % by mass, and not more than 40% by mass, of hazelnuts.

The following may be added:

Almonds, hazelnuts and other nut varieties, either whole or broken, in such quantities that, together with the ground hazelnuts, they do not exceed 60% by mass, of the total weight of the product. Where required by the competent authority, a minimum content of cocoa butter plus milk fat may also be set.

4.3.4 Chocolate para mesa

Chocolate para mesa is unrefined chocolate in which the grain size of sugars is larger than 70 microns.

4.3.4.1 Chocolate para mesa / dark chocolate

Chocolate para mesa dark chocolate shall contain, on a dry matter basis, not less than 20% by mass, total cocoa solids (including a minimum of 11% by mass, cocoa butter and a minimum of 9% by mass, fat-free cocoa solids).

4.3.4.2 Semi-bitter chocolate para mesa / dark chocolate

Semi-bitter Chocolate para mesa / dark chocolate shall contain, on a dry matter basis, not less than 30% by mass, total cocoa solids (including a minimum of 15% by mass, cocoa butter and a minimum of 14% by mass, fat-free cocoa solids).

4.3.4.3 Bitter chocolate para mesa / dark chocolate/Baking Chocolate

Bitter Chocolate para mesa/ dark chocolate shall contain, on a dry matter basis, not less than 40% by mass, total cocoa solid (including a minimum of 22% by mass, cocoa butter and a minimum of 18% by mass, fat-free cocoa solids)

4.3.5 Chocolate cream

Plain chocolate or milk chocolate, with cream and milk solids added, shall contain on a dry matter basis, not less than 7% by mass, milk fat, and not less than 25% by mass, of fatty matter, and not less than 2.5% fat-free cocoa solids, **and** non-fat milk solids from 3% to 14% by mass.

4.3.6 Chocolate with spices and flavours

Sweetened plain chocolate or milk chocolate to which an authorized spiced flavor has been added, so that it acquires a distinctive taste and aroma of the used flavor, such as, coffee, cinnamon, mint, ginger, garlic, tumeric, vanilla, etc

4.3.7 Chocolate with fruit flavors

Sweetened plain chocolate or milk chocolate to which an authorized fruit flavor has been added, so that it acquires a distinctive taste and aroma of the used flavor, such as mango, citrus, banana, pineapple, strawberry, etc

4.4 Chocolate product types (forms)**4.4.1 Requirements for Chocolate Vermicelli and Chocolate Flakes****4.4.1.1 Chocolate Vermicelli and Chocolate Flakes**

Chocolate Vermicelli and Chocolate Flakes shall contain, on a dry matter basis, not less than 32% total cocoa solids, of which at least 12% shall be cocoa butter and 14% fat-free cocoa solids.

4.4.1.2 Milk Chocolate Vermicelli and Milk Chocolate Flakes

shall contain, on a dry matter basis, not less than 20% by mass, cocoa solids (including a minimum of 2.5% by mass, fat-free cocoa solids) and not less than 12% by mass, milk solids (including a minimum of 3% by mass, milk fat).

4.4.2 Filled Chocolate

The chocolate part of the coating must make up at least 25% by mass, of the total weight of the product concerned.

4.4.3 Chocolate Praline

designates the product in a single mouthful size, where the amount of the chocolate component shall not be less than 25% by mass, of the total weight of the product. The product shall consist of either filled chocolate or a single or combination of the chocolates as defined under clause 4.2 and 4.3, with exception of chocolate a la taza, chocolate familiar a la taza and products defined in clause 4.3.4 (chocolate para mesa). (% calculated on the dry matter in the product and after deduction of the weight of the other edible foodstuffs authorized under clause 3).

Table 1 - Summary Table Of Compositional Requirements Of Clause 4

PRODUCTS	CONSTITUENTS (%)						
	Cocoa Butter	Fat-free Cocoa Solids	Total Cocoa Solids	Milk Fat	Total Milk Solids	Starch / Flour	Hazelnuts
CHOCOLATE TYPES (COMPOSITION)							
Chocolate (4.1.1)	≥18	≥14	≥35				
Chocolate a la taza (4.2.1)	≥18	≥14	≥35			< 8	

Sweet Chocolate (4.2.2)	≥18	≥12	≥30				
Chocolate familiar a la taza (4.2.2.1)	≥18	≥12	≥30			< 18	
Couverture Chocolate (4.2.2.2)	≥31	≥2.5	≥35				
Milk Chocolate (4.2.3)		≥2.5	≥25	≥2.5-3.5	≥12-14		
Family Milk Chocolate (4.2.4)		≥2.5	≥20	≥5	≥20		
Milk Chocolate Couverture 4.2.5		≥2.5	≥25	≥3.5	≥14		
4.3 Other chocolate products							
White Chocolate (4.3.1)	≥20			≥2.5-3.5	≥14		
Gianduja Chocolate (4.3.2)		≥8		≥32			≥20 and ≤40
Gianduja Milk Chocolate (4.3.3)		≥2.5	≥25	≥2.5-3.5	≥10		≥15 and ≤40
4.3.4 Chocolate para mesa							
Chocolate para mesa/dark chocolate (4.3.4.1)	≥11	≥9	≥20				
Semibitter Chocolate para mesa/ dark chocolate (4.3.4.2)	≥15	≥14	≥30				
Bitter Chocolate para mesa/ dark chocolate (4.3.4.3)	≥22	≥18	≥40				
4.4 CHOCOLATE TYPES (forms)							
4.4.1 Chocolate Vermicelli / Chocolate Flakes							
Chocolate Vermicelli / Chocolate Flakes Item (4.4.1.1)	≥12	≥14	≥32				
Milk Chocolate Vermicelli / Milk Chocolate Flakes (4.4.1.2)		≥2.5	≥ 20	≥3	≥12		
Filled Chocolate (see clause 4.4.2)							
Chocolate Praline (see clause 4.4.3)							

4.5 Additional requirements

- 4.5.1. The product shall be free from added alcoholic substances.
- 4.5.2. The product shall be free of rancidity and undesirable smell, provided that the peroxide number does not exceed 10 ml of effective oxygen equivalent/kg of fat.
- 4.5.3. The product shall be completely free of animal fats or their derivatives (except for milk fat).
- 4.5.4. Moisture content shall not exceed 3% for chocolate.
- 4.5.5. Ash shall not exceed 2.5 % for chocolate.
- 4.5.6. Vegetable fats other than cocoa butter shall not exceed 5% of the finished product.
- 4.5.7. Free from foreign matter.
- 4.5.8. The raw materials used in the manufacture of these items shall comply with relevant standards.
- 4.5.9. The maximum limits for heavy metals shall be in accordance with CODEX STAN 193
- 4.5.10. The maximum limits for pesticide residues shall be in accordance with Codex Alimentarius Commission.
- 4.5.11. The product shall be homogeneous with a distinct taste, colour and aroma.

5 Food Additives

- 5.1 Food additives may be used in the chocolate and chocolate products. Food additives used shall be in accordance with the requirements stipulated in Codex Stan 192.
- 5.2 Flavourings may be used in chocolate and chocolate products. Flavourings used shall be in accordance with the guidelines stated in CAC/GL 66.
- 5.3 Processing Aids

- 5.3.1 The processing aids used in products shall be in accordance with the CAC/GL 75.
- 5.3.2 The maximum level of Hexane (62°C – 82°C) when calculated on a fat content basis, in chocolate or chocolate product shall be 1 mg/kg.

6 Hygiene

- 6.1 Chocolate and chocolate products shall be prepared and handled in accordance with CAC/RCP 1.
- 6.2 Microbiological limits:
The products should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21- 1997) and shall comply with the requirements in Table 2.

Table 2: Microbiological limits for Chocolates and chocolate products

Microorganisms	N	C	M	M	Reference Analysis Method
Total aerobic mesophilic bacterial count	5	2	10 ³ CFU /g	10 ⁴ CFU /g	ISO 4833-1
Enterobacteriaceae	5	2	10 CFU /g	CFU /g 10 ²	ISO 21528-1
Osmophilic yeasts and Xerophilic moulds	5	2	10 CFU /g	CFU /g 10 ²	ISO 21527-2
Salmonella	5	0	not detected CFU /25g		ISO 6579
Escherichia coli	5	0	20 CFU/g		ISO 16649-1or 2
coagulase producing <i>Staphylococcus</i>	5	0	10 ² CFU/g		ISO 16649-1or 2

Key:

n=The number of samples units drawn to collect a sample, number of samples or units analyzed.

c= maximum allowable number of sample units yielding marginal results, i.e. results between m and M. The ability of a process to meet specification limits and indicates the maximum number of non-conforming analytical units (two-class sampling plans) or marginally acceptable analytical units (three-class sampling plans) that can result in lot acceptance.

m=Delimits acceptable and marginally acceptable concentrations. Used in 3-class sampling plans m = microbiological level that separates good quality from defective, or in a three-class plan good from marginally acceptable quality.

M=Marks the limit beyond which the level of contamination is hazardous or unacceptable Used 3-class sampling plans

7 Packaging and Labelling

7.1 Packaging

Chocolate and chocolate products shall be packed in suitable food-grade packages to ensure protection from any change in its properties or suitability for human consumption, provided that the packages used do not conflict with the relevant African standard.

7.2 Labelling

In addition to the requirements of ARS 56, the following declarations shall be made:

7.2.1 Name of the Food

7.2.1.1 Products described under clause 4.1 to 4.4 of this Standard and complying with the appropriate requirements of the relevant clauses.

a. The name of the product shall be in accordance with items 4.1 and 4.2. The products mentioned in 4.1.1 may be described as “sweet bitter chocolate, semi-sweet chocolate/ dark chocolate, and chocolate fondant.

b. When replacing sugar partially or completely with artificial sweeteners that are authorized for use, their presence must be indicated next to the name of the product in clear writing, for example chocolate X with artificial sweeteners.

c. A statement of ingredients and additives, and the percentage of vegetable fats other than cocoa butter, if added.

d. Filled Chocolate

The products listed in Clause 4.4.2 may be described as “filled chocolate”, “chocolate with X filling”, or “chocolate with X in the centre”, where X describes the filling. Describe the type of chocolate used to cover the exterior, according to what was mentioned in clause 7.2.1.1 (a) and (b). Filling material shall be written in an appropriate phrase that is easy for the consumer to understand.

e. Assorted Chocolates:

Where the products described under clause 4.2 , 4.3 or 4.4 with exception of chocolate a la taza, chocolate familiar a la taza and chocolate para mesa are sold in assortments, the product name may be replaced by the words “Assorted Chocolates”, “Assorted filled Chocolates”, “Assorted Chocolate Vermicelli”, etc. In that case, there shall be a single list of ingredients for all the products in the assortment or alternatively lists of ingredients by products.

f. Other Information Required

Any characteristic flavour, other than chocolate flavour shall be in the designation of the product. Ingredients, which are especially aromatic and characterize the product shall form part of the name of the product (e.g. Mocca Chocolate).

g. Use of the Term Chocolate:

Products not defined under this Standard, and where the chocolate taste is solely derived from non-fat cocoa solids, can carry the term “chocolate” in their designations in accordance with the provisions or customs applicable in the country in which the product is sold to the final consumer and this to designate other products which cannot be confused with those defined in this Standard.

h. Declaration of minimum cocoa content

When required by the relevant authority, products described under clause 4.2 and 4.3 of this Standard, except for white chocolate, shall carry a declaration of cocoa solids. For the purpose of this declaration, the percentages declared shall be made on the chocolate part of the product after the deduction of the other permitted edible foodstuffs.

i. Labelling of non-retail containers

Information required in clause 7 of this Standard and clause 4 of the General Standard for the Labelling of Prepackaged Foods 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, packer, distributor and/or importer shall appear on the container. However, lot identification, and the name and address of the manufacturer, packer, distributor and/or importer may be replaced by an identification mark provided that such a mark is clearly identifiable with the accompanying documents.

8. Methods Of Analysis And Sampling

Recommended methods of analysis and sampling of chocolate are indicated in Table 3.

Table 3 – Analysis and Test Methods

S/No	ANALYSIS	TEST METHODS
1	DETERMINATION OF CENTRE AND COATING OF FILLED CHOCOLATE	All methods approved for the chocolate type used for the coating and those approved for the type of centre concerned
2	DETERMINATION OF COCOA BUTTER	AOAC 963.15 or IOCCC 14-1972.
3	DETERMINATION OF FAT-FREE COCOA SOLID	AOAC 931.05.
4	DETERMINATION OF FAT-FREE MILK SOLIDS	IOCCC 17-1973 or AOAC 939.02.
5	DETERMINATION OF MILK FAT	IOCCC 5-1962 or AOAC 945.34, 925.41B, 920.80.
6	DETERMINATION OF MOISTURE	to IOCCC 26-1988 or AOAC 977.10 (Karl Fischer method); or AOAC 931.04 or IOCCC 1-1952 (gravimetry).
7	DETERMINATION OF TOTAL FAT	AOAC 963.15
8	DETERMINATION OF NON-COCOA BUTTER VEGETABLE FAT IN CHOCOLATE AND CHOCOLATE PRODUCTS i. Detection of Non-Cocoa Butter Vegetable Fats in Chocolate Detecting sterol breakdown products in refined vegetable fats added to chocolate. ii. Quantitative Determination of Non-Cocoa Butter Vegetable Fats ‡ Determination of the triacylglycerol (C50, C52, C54) present in cocoa butters and non-cocoa butter vegetable fats	AOCS Ce 10/02 GC-FID in J. Amer. Oil Chem. Soc. (1980), 57, 286-293 (When type of non-cocoa butter vegetable fat is known, the amount of non-cocoa butter vegetable fat is calculated according to J. Amer. Oil Chem. Soc. (1980), 57, 286-293. When type of non-cocoa butter vegetable fat is not known, the calculation is made according to J. Amer. Oil Chem. Soc. (1982), 61 (3), 576-581)