# AFRICAN STANDARD





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#### Foreword

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These African Standards were prepared by ARSO/THC 02-5, *Technical Working Group on Coffee, Cocoa, Tea and Similar Products* under the mandate of ARSO/THC 02-6, *Technical Harmonization Committee Number 2 on Agriculture and Food Products* (ARSO/THC 02)

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#### Introduction

This African standard has been developed by Technical Committee TC 06 /WG 1-Cocoa on "Cocoa and related products".



# AFRICAN STANDARD

# CD ARS 1815:2024

#### **COCOA BUTTER** — Specification

#### 1 Scope

This African Standard specifies the quality and safety requirements, storage conditions, sampling and referenced test methods for pressed Cocoa Butter.

#### 2. Normative Reference

The following referenced documents are applicable to this African Standard, for dated references only the edition cited applies, for undated references the latest edition of the referenced document (including any amendment) applies.

CODEX STAN 86-1981, REV.1- 2001 - Codex Standard for cocoa butter 2.1 -CAC/RCP 1, International Code of Practice – General Principles of Food Hygiene CAC/RCP, 2.2. vol 10 2007-Codex Alimentarius Commission- General Requirement for Food Hygiene 23 -CXS 234 Recommended methods of analyses and samplingCODEX STAN 234-REV 1-2009 -Codex Alimentarius Commission sampling plan for pre-packaged foods (AQL - 6.5) CAC/RM42-1969, recommended method of Analysis and Sampling. 2.2. 2.4.2.3. CODEX STAN 1-1987, Rev2010 -Codex Alimentarius Commission (CAC): General Standard for the Labelling of Pre-packaged foods. 2.5 FDA Guidelines for Food Hygiene Practice, 2007. 2.6 FDA Regulations on the labelling of pre-packaged food, 2005 FDA Food Additives Regulations, 2005 27 Codex Stan 192, Codex Alimentarius Commission General Standard for Food Additive Codex 2.8. Alimentarius Commission (CAC): General Standard for Food Additives (GSFA) 2006, 2.9 -CAC-(CX 193-1995-2010) Codex Alimentarius Commission maximum limits for Contaminants 2.10. CODEX STAN 193-1995, 2010-General Standard for Contaminants and Toxins in Food and Feed ARS ARS 1000-2 Sustainable cocoa: Requirement for cocoa quality and traceabilityStandard 2.5. for Cocoa Beans 2.11. Codex Stan 193 General Standard for Contaminants and Toxins in Food and Feed 2.6. 2.7. ISO 663 Animal and vegetable fats and oils — Determination of insoluble impurities content 2.8. ISO 660 Animal and vegetable fats and oils — Determination of acid value and acidity JSO 3596 Animal and vegetable fats and oils - Determination of unsaponifiable matter -2.9. Method using diethyl ether extraction JSO 18609 Animal and vegetable fats and oils — Determination of unsaponifiable matter — 2.10. Method using hexane extraction ISO 662 Animal and vegetable fats and oils - Determination of moisture and volatile matter 2.11. content 2.12. ISO 3960 Animal and vegetable fats and oils — Determination of peroxide value — Iodometric (visual) endpoint determination ISO 6320 Animal and vegetable fats and oils - Determination of refractive index 2.13. ISO 15305 Animal and vegetable fats and oils — Determination of refractive index 2.14. ISO 3961 Animal and vegetable fats and oils - Determination of iodine value 2.15. 2.16. ISO 3657 Animal and vegetable fats and oils - Determination of saponification value 2.17. JSO 6321 Animal and vegetable fats and oils — Determination of melting point in open capillary tubes — Slip point 2.18.\_\_ ICA/AM-29 2.19. JSO 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 2.20. ISO 4833-2 Microbiology of the food chain - Horizontal method for the enumeration of microorganisms - Part 2: Colony count at 30 °C by the surface plating technique

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2.21. ISO 8573-7 Compressed air – Part 7: Test method for viable microbiological contaminant

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

2.23. ISO 21527-1 Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds – Part 1: Colony count technique in products with water activity greater than 0.95

# 3. Terms and Definitions

For the purpose of this standard, the following shall apply:

#### 3.1

#### cocoa butter

fat extracted from cocoa beans and/or its derivatives"fat obtained from cocoa beans

#### 3.2

#### pressed cocoa butter

butter fat which is obtained by pressure from cocoa nib or cocoa mass (cocoa liquor) obtained from cocoa beans. It is a Golden yellowish fat with the typical chocolate odour normally associated with cocoa.

#### 3.3

#### expeller cocoa butter

builter fat prepared by the expeller process from cocoa beans singly without de-shelling by using the continuous expeller presses or in combination with cocoa nib, cocoa mass, cocoa press cake and low-fat cocoa press cake.

#### 3.4

#### solvent extracted cocoa butter

fat obtained by extraction from the cake residue left after the expeller process. This type of butter must be refined.

#### 3.5

#### refined cocoa butter

is the butter fat that is refined (deodorized and bleached) resulting in a white colour, this has no odour.

#### 3.6

#### cocoa nibs

cocoa beans that have been roasted, separated from their husk and broken into smaller pieces.

#### 3.7

# ditching / alkalizing

addition of alkalizing agent to modify the colour and flavour of cocoa.

# 3.8

pressing separation of cocoa butter from cocoa liquor

#### 3.9

# clear melting point

temperature at which the double carbon bonds are broken and cocoa fat melts completely and becomes transparent.

#### 3.10

**blue value** blue value defines the shell lipid content of fat in cocoa butter.

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#### 3.11

# peroxide value

milligram of potassium hydroxide utilized per 100g of the material.

#### 3.12

#### iodine value

measure of iodine absorbed per 100grams of the fat. It is used to determine the number of unsaturation in fatty acids.

#### 3.13

#### saponification value

represents the number of milligrams of potassium hydroxide required to saponify 1 gram of fat. It is a measure of the average molecular weight of all the fatty acid present.

#### 3.14

#### moisture content

expresses the amount of water present in a moist sample of the substance. it can also be expressed on dry basis.

#### 3.15

#### refractive index

related to the ease with which light passes through cocoa butter. Temperature and degree of saturation affect the value. This refractive index value can be used as an indirect measure of unsaturation.

#### 3.16

### acid value

acid degree value indicates the amount of free fatty acids present in cocoa butter.

#### 3.17

#### free fatty acids

carboxylic acids present in cocoa butter with a long aliphatic chain which is either saturated or unsaturated.

#### 3.18

#### unsaponifiable matter

refers to the compounds in cocoa butter which are not saponified by alkali

#### 4. INGREDIENTS

#### 4.1 Essential Ingredients

Fermented or unfermented dried cocoa beans and its derivatives Fermented dried cocoa beans

#### 4.2 Optional Ingredients

These shall be as in Table 1

#### **Table 1- Alkalyzing Agent**

Alkalizing Agent	Maximum Level (g/kg)
a. Ammonium Carbonate.	
b. Ammonium Hydroxide.	
c. Ammonium Hydrogen Carbonate	
d. Calcium Carbonate.	Limited by CMD
e. Calcium Hydroxide.	LITTILEU DY GIVIF
f. Magnesium Carbonate.	
g. Magnesium Hydroxide.	
h. Magnesium Oxide.	

i. Potassium Carbonate.	
j. Potassium Hydroxide.	
k. Potassium Hydrogen Carbonate.	
I. Sodium Carbonate.	
m. Sodium Hydroxide.	
n. Sodium Hydrogen Carbonate.	

#### 5. FOOD ADDITIVES

In addition to Table 1, Only Food additives as approved by Codex Alimentarius Commission (CAC) 192 – General Standard for Food Additives (GSFA) shall be used.

#### 56. QUALITY REQUIREMENT

In addition to sections 4 and 5 cocoa butter shall not contain constituents in concentration which is known to be dangerous to health. The constituents and recommendation shall be based on regulation obtainable from CAC.

# 65.1 General Requirements

 $6\underline{5}.1.1$  Cocoa beans used for the production of cocoa butter shall comply with the relevant African Standard for Cocoa Beans ARS 1000-2.

65.1.2 Cocoa butter shall have an aroma / odour characteristic of cocoa.

#### 65.2 Specific Requirements

Cocoa Butter shall comply with the specific requirements stated in Table 2

### **TABLE 2 - SPECIFIC REQUIREMENTS**

PARAMETERS	REQUIREMENTS	TEST METHOD	)
Solubility	Insoluble in water but soluble in	ISO 663	
	organic substance		
Free Fatty Acid content (as Oleic acid %) (max)	1.75	ISO 660	
Unsaponifiable matter % (max)	-0.35	ISO 36052	
Moisture % (max)	<u>-0.30.2</u>	ISO 662	
Peroxide value meq/kg (max)	1.60	ISO 3960	C
Refractive index at 40 °C	1.453 - 1.459	ISO 6320	
Colour ( lovibond)	41 ± 1.2	ISO 15305	
lodine value (wijs)	33 - 40	ISO 3961	
Acid value % (max)	3.5	ISO 660	
Saponification value	188 - 198	ISO 3657	
Clear melting point <sup>o</sup> C	32 - 35	ISO 920	
Blue value koh/Mg (max)	0.01	ICA/AM-29	

#### 65.3 Contaminants

# 65.3.1 Microbiological

The microbial limit for cocoa butter shall not exceed the values stated in Table 3

### **TABLE 3 - MICROBIAL CONTAMINANTS**

PARAMETERS	REQUIREMENTS	TEST METHOD
	LIMITS	

Total Viable Count (cfu/g) (max)	10 <sup>3</sup>	ISO 4833 <u>-1</u>
Coliform (cfu/10g) (max)	Absent	ISO <u>8573-74832</u>
Escherichia.coli (cfu/g) (max)	Absent	ISO 16649-1-or-2
Salmonella sp (cfu/ 25g) (max)	Absent	ISO <u>4833</u> 6579-1
Yeast and Mould (cfu/g) (max)	10 <sup>3<u>2</u></sup>	ISO 21527- <u>2</u> 4

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#### 65.3.2 Heavy Metals

The heavy metals limit for cocoa butter shall not exceed the values stated in Table 4

#### **TABLE 4 - HEAVY METALS CONTAMINANT**

PARAMETERS	REQUIREMENTS	TEST METHODS
Arsenic (mg/kg) (max)	0.1	AOAC 986
Lead (mg/kg) (max)	0. <u>1</u> <del>08</del>	AOAC 934
Cadmium	0.6	

#### 65.3.3 Chemical

Cocoa butter shall not contain chemical contaminants above the levels specified in Table 5.

#### **TABLE 5 - MYCOTOXIN CONTAMINANT**

S/N	PARAMETER	REQUIREMENTS	]	
1	Total Aflatoxin (ppbmicrogram / kg)	10		 Formatted: Font color: Auto
	(max)			
2	Ochratoxin A (ppb) (max)	<u>105</u>		 Formatted: Font color: Auto

#### 6<u>5</u>.3.4 Pesticides Residues

The maximum residue limit shall be in conformity with the CAC/MRLSI 193 as amended. The Pesticide Residue Contaminant in cocoa butter shall conform to those maximum residue limits established by the Codex Alimentarius Commission. There is a regularly updated database on the codex website with more relevant information on pesticide residues for the commodity.

#### 76.0 HYGIENE

1

67.1 To the extent possible in Good Manufacturing Practice, the product shall be produced and handled in accordance with the relevant section of the General Principles of Food Hygiene CAC/RCP

7.2 To the extent possible in good manufacturing practice, the product shall be free from objectionable matter.

7.3 When tested by appropriate methods of sampling and examination, the product shall not contain any substance originating from microorganisms in amounts which may represent a hazard to health.

7.4 When tested by appropriate methods of sampling and analysis, the products shall be free from microorganisms in amounts which may represent a hazard to health. (CAC/GL 50)

Also the premises, people engaged in handling cocoa butter must be clean. The equipment 7.5 used for manufacture and vehicles used for distribution of cocoa butter must be in good hygienic condition.

#### LABELLING <u>78.0</u>

In addition to the labelling requirements specified in ARS 56, packages of cocoa butter shall be labelled legibly and indelibly with the following" The products covered by this standard shall be labelled as follows:

Name of the Product shall be "Cocoa butter" with indication of its nature as appropriate."Name <u>7</u>8.1 of the Product

- 8.1.1 The product shall be 'Cocoa butter" as appropriate.
- <u>78.2</u> Net weight or Content
- 78.3 Date of manufacture
- <u>7</u>8.4 Best before date
- <u>7</u>8 5

78.5 Name and address of Manufacturer, Packer, Exporter, or Importer or Distributor
78.6 Country of manufacture
78.7 Non-Retail containers, information required in section 8.1 to 8.6 and storage instructions if required shall either be given on the container or in accompanying documents, except that the Product lot or batch identification and the name and address shall be indicated on the container. However, lot/ batch identification and the name and address may be replaced by an Identification mark, provided that such mark is clearly identifiable with accompanying documents.

# ANNEX A METHOD OF ANALYSIS

Tests shall be carried out using the following or any other internationally acceptable method.

9.1	DETERMINATION OF FREE FATTY ACIDS
	—According to IUPAC (1987)2.20 and according to ISO 660:1996
9.2	
	—According to IUPAC (1987)2.401 and ISO 6320:2000
9.3	
	According to AOAC 934.07 or IUPAC method (Pure and applied chem., 63).
9.4	DETERMINATION OF MOISTURE CONTENT
	According to ISO 662:1998
9.5	DETERMINATION OF PEROXIDE VALUE
	According to ISO 3960:2001
9.6	—DETERMINATION OF ACID VALUE
	According to ISO 660:1996
9.7	
	According to ISO 3961:1999
9.8	DETERMINATION OF REFRACTIVE INDEX
	According to ISO 6320:2000
9.9	DETERMINATION OF SAPONIFIACATION VALUE
	According to ISO 3657:1988
9.10	—DETERMINATION OF CLEAR MELTING POINT
9.11	DETERMINATION OF BLUE VALUE
	—According to ICA/AM- 29:1988
9.12	DETERMINATION OF COLOUR
	—According to NEN 1229:1995,ISO 15305:1998
9.13	—A.O.A.C. (2008) Official methods of analysis of AOAC international,18 <sup>th</sup> edition,
	—Rev 2, 2008.

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