

# CODEX STANDARD FOR CHOCOLATE AND CHOCOLATE PRODUCTS

(CODEX STAN 87-1981, Rev. 1 - 2003)

## 1 SCOPE

The standard applies to chocolate and chocolate products intended for human consumption and listed in Section 2. Chocolate and chocolate products shall be prepared from cocoa and cocoa materials with sugars and may contain sweeteners, milk products, flavouring substances and other food ingredients.

## 2 DESCRIPTION AND ESSENTIAL COMPOSITION FACTORS

Chocolate is the generic name for the homogenous products complying with the descriptions below and summarized in Table 1. It is obtained by an adequate manufacturing process from cocoa materials which may be combined with milk products, sugars and/or sweeteners, and other additives listed in section 3 of the present standard. Other edible foodstuffs, excluding added flour and starch (except for products in sections 2.1.1.1 and 2.1.2.1 of this Standard) and animal fats other than milk fat, may be added to form various chocolate products. These combined additions shall be limited to 40 % of the total weight of the finished product, subject to the labelling provisions under Section 5.

The addition of vegetable fats other than cocoa butter shall not exceed 5% of the finished product, after deduction of the total weight of any other added edible foodstuffs, without reducing the minimum contents of cocoa materials. Where required by the authorities having jurisdiction, the nature of the vegetable fats permitted for this purpose may be prescribed in applicable legislation.

### 2.1 CHOCOLATE TYPES (COMPOSITION)

#### 2.1.1 *Chocolate*

*Chocolate* (in some regions also named *bittersweet chocolate*, *semi-sweet chocolate*, *dark chocolate* or "*chocolat fondant*") 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.

**2.1.1.1** *Chocolate a la taza* is the product described under Section 2.1.1 of this Standard and containing a maximum of 8% m/m flour and/or starch from wheat, maize or rice.

#### 2.1.2 *Sweet Chocolate*

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

**2.1.2.1** *Chocolate familiar a la taza* is the product described under Section 2.1.2 of this Standard and containing a maximum of 18% m/m flour and/or starch from wheat, maize or rice.

#### 2.1.3 *Couverture Chocolate*

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

#### 2.1.4 *Milk Chocolate*

*Milk Chocolate* shall contain, on a dry matter basis, not less than 25% cocoa solids (including a minimum of 2.5% fat-free cocoa solids) and a specified minimum of milk solids between 12% and 14% (including a minimum of milk fat between 2.5% and 3.5%). The minimum content for milk solids and milk fat shall be applied by the authority having jurisdiction in accordance with applicable legislation. "Milk solids" refers to the addition of milk ingredients in their natural proportions, except that milk fat may be added, or removed.

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

### **2.1.5 Family Milk Chocolate**

*Family Milk Chocolate* shall contain, on a dry matter basis, not less than 20% cocoa solids (including a minimum of 2.5% fat-free cocoa solids) and not less than 20% milk solids (including a minimum of 5% milk fat). "Milk solids" refers to the addition of milk ingredients in their natural proportions, except that milk fat may be added, or removed.

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

### **2.1.6 Milk Chocolate Couverture**

*Milk Chocolate Couverture* shall contain, on a dry matter basis, not less than 25% cocoa solids (including a minimum of 2.5% non-fat cocoa solids) and not less than 14% milk solids (including a minimum of 3.5% milk fat) and a total fat of not less than 31%. "Milk solids" refers to the addition of milk ingredients in their natural proportions, except that milk fat may be added, or removed.

### **2.1.7 Other chocolate products**

#### **2.1.7.1 White Chocolate**

*White Chocolate* shall contain, on a dry matter basis, not less than 20% cocoa butter and not less than 14% milk solids (including a minimum milk fat in a range of 2.5% to 3.5% as applied by the authority having jurisdiction in accordance with applicable legislation). "Milk solids" refers to the addition of milk ingredients in their natural proportions, except that milk fat may be added, or removed.

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

#### **2.1.7.2 Gianduja Chocolate**

"*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%, including a minimum dry non-fat cocoa solids content of 8%, and, secondly, from finely ground hazelnuts such that the product contains not less than 20 % and not more than 40% 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% 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% of the total weight of the product.

#### **2.1.7.3 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% and, secondly, from finely ground hazelnuts such that the product contains not less than 15 % and not more than 40% of hazelnuts. "Milk solids" refers to the addition of milk ingredients in their natural proportions, except that milk fat may be added or removed.

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% 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.

#### **2.1.7.4 Chocolate para mesa**

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

#### **2.1.7.4.1 Chocolate para mesa**

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

#### **2.1.7.4.2 Semi-bitter chocolate para mesa**

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

#### **2.1.7.4.3 Bitter chocolate para mesa**

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

### **2.2 CHOCOLAT TYPES (FORMS)**

#### **2.2.1 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.

##### **2.2.1.1 Chocolate Vermicelli / Chocolate Flakes**

*Chocolate Vermicelli / 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.

##### **2.2.1.2 Milk Chocolate Vermicelli / Milk Chocolate Flakes**

*Milk Chocolate Vermicelli / Milk Chocolate Flakes* shall contain, on a dry matter basis, not less than 20% cocoa solids (including a minimum of 2.5% fat-free cocoa solids) and not less than 12% milk solids (including a minimum of 3% milk fat). "Milk solids" refers to the addition of milk ingredients in their natural proportions, except that milk fat may be added, or removed.

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

#### **2.2.2 Filled Chocolate**

*Filled Chocolate* is a product covered by a coating of one or more of the Chocolates defined in Section 2.1, with exception of *chocolate a la taza*, *chocolate familiar a la taza* and products defined in section 2.1.7.4 (*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. The chocolate part of the coating must make up at least 25% of the total weight of the product concerned.

If the centre part of the product is made up of a component or components for which a separate Codex Standard exists, the component(s) must comply with the applicable standard.

#### **2.2.3 A Chocolate or Praline**

*A Chocolate or Praline* designates the product in a single mouthful size, where the amount of the chocolate component shall not be less than 25% 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 Section 2.1, with exception of *chocolate a la taza*, *chocolate familiar a la taza* and products defined in section 2.1.7.4 (*chocolate para mesa*).

**TABLE 1. SUMMARY TABLE OF COMPOSITIONAL REQUIREMENTS OF SECTION 2<sup>1</sup>**

(% calculated on the dry matter in the product and after deduction of the weight of the other edible foodstuffs authorized under Section 2)

PRODUCTS	CONSTITUENTS (%)						
	Cocoa Butter	Fat-free Cocoa Solids	Total Cocoa Solids	Milk Fat	Total Milk Solids	Starch / Flour	Ground Hazelnuts
<b>2. Chocolate Types</b>							
<b>2.1 CHOCOLATE TYPES (COMPOSITION)</b>							
<b>2.1.1 Chocolate</b>	≥18	≥14	≥35				
2.1.1.1 Chocolate a la taza	≥18	≥14	≥35			< 8	
<b>2.1.2 Sweet Chocolate</b>	≥18	≥12	≥30				
2.1.2.1 Chocolate familiar a la taza	≥18	≥12	≥30			< 18	
<b>2.1.3 Couverture Chocolate</b>	≥31	≥2.5	≥35				
<b>2.1.4 Milk Chocolate</b>		≥2.5	≥25	≥2.5-3.5	≥12-14		
<b>2.1.5 Family Milk Chocolate</b>		≥2.5	≥20	≥5	≥20		
<b>2.1.6 Milk Chocolate Couverture</b>		≥2.5	≥25	≥3.5	≥14		
<b>2.1.7 Other chocolate products</b>							
2.1.7.1. White Chocolate	≥20			≥2.5-3.5	≥14		
2.1.7.2 Gianduja Chocolate		≥8	≥32				≥20 and ≤40
2.1.7.3 Gianduja Milk Chocolate		≥2.5	≥25	≥2.5-3.5	≥10		≥15 and ≤40
2.1.7.4 Chocolate para mesa							
2.1.7.4.1 Chocolate para mesa	≥ 11	≥ 9	≥ 20				
2.1.7.4.2 Semi-bitter chocolate para mesa	≥15	≥14	≥ 30				
2.1.7.4.3 Bitter chocolate para mesa	≥ 22	≥18	≥ 40				
<b>2.2 CHOCOLATE TYPES (forms)</b>							
<b>2.2.1 Chocolate Vermicelli / Chocolate Flakes</b>							
2.2.1.1 Chocolate Vermicelli / Chocolate Flakes	≥12	≥14	≥32				
2.2.1.2 Milk Chocolate Vermicelli / Milk Chocolate Flakes		≥2.5	≥ 20	≥3	≥12		
<b>2.2.2 Filled Chocolate (see section 2.2.2)</b>							
<b>2.2.3 A Chocolate or Praline (see section 2.2.3)</b>							

<sup>1</sup> “*Milk solids*” refers to the addition of milk ingredients in their natural proportions except that milk fat may be added or removed.

### 3 FOOD ADDITIVES

The food additives listed below may be used and only within the limits specified.

Other additives from the General Standard for Food Additives (GSFA) approved list may be used, subject to the authority having jurisdiction in accordance with applicable legislation.

**3.1** Alkalizing and neutralizing agents carried over as a result of processing cocoa materials in proportion to the maximum quantity as provided for.

#### 3.2 ACIDITY REGULATORS

#### Maximum Level

503(i)	Ammonium carbonate	Limited by GMP
527	Ammonium hydroxide	
503(ii)	Ammonium hydrogen carbonate	
170(i)	Calcium carbonate	
330	Citric acid	
504(i)	Magnesium carbonate	
528	Magnesium hydroxide	
530	Magnesium oxide	
501(i)	Potassium carbonate	
525	Potassium hydroxide	
501(ii)	Potassium hydrogen carbonate	
500(i)	Sodium carbonate	
524	Sodium hydroxide	
500(ii)	Sodium hydrogen carbonate	
526	Calcium hydroxide	
338	Orthophosphoric acid	2.5 g/kg expressed as P <sub>2</sub> O <sub>5</sub> in finished cocoa and chocolate products
334	L-Tartaric acid	5 g/kg in finished cocoa and chocolate products

#### 3.3 EMULSIFIERS

#### Maximum Level

#### Products

471	Mono- and di-glycerides of fatty acids	GMP	Products described under 2.1 and 2.2
322	Lecithins	GMP	" "

422	Glycerol			"	"
442	Ammonium salts of phosphatidic acids	10 g/kg		"	"
476	Polyglycerol esters interesterified ricinoleic acid	5 g/kg	15 g/kg	"	"
491	Sorbitan monostearate	10 g/kg	in combination	"	"
492	Sorbitan tristearate	10 g/kg		"	"
435	Polyoxyethylene (20) sorbitan monostearate	10 g/kg			

### 3.4 FLAVOURING AGENTS

<b>3.4.1</b>	Natural flavours as defined in the Codex Alimentarius, and their synthetic equivalents, except those which would imitate natural chocolate or milk flavours <sup>2</sup>		GMP	Products described under 2.1 and 2.2	
<b>3.4.2</b>	Vanillin		1 g/kg	Products described under 2.1 and 2.2	
<b>3.4.3</b>	Ethyl vanillin		in combination	Products described under 2.1 and 2.2	

### 3.5 SWEETENERS

950	Acesulfame K		500 mg/kg	Products described under 2.1 and 2.2	
951	Aspartame		2 000 mg/kg	"	"
952	Cyclamic acid and its Na and Ca salts		500 mg/kg	"	"
954	Saccharin and its Na and Ca salts		500 mg/kg	"	"
957	Thaumatococcus			"	"

<sup>2</sup> Temporarily endorsed

420	Sorbitol		"	"
421	Mannitol		"	"
953	Isomalt	GMP	"	"
965	Maltitol		"	"
966	Lactitol		"	"
967	Xylitol		"	"

### 3.6 GLAZING AGENTS

414	Gum Arabic (Acacia gum)		Products described under 2.1 and 2.2	
440	Pectin		"	"
901	Beeswax, white and yellow	GMP	"	"
902	Candelilla wax		"	"
904	Shellac		"	"

### 3.7 ANTIOXIDANTS

304	Ascorbyl palmitate	200 mg/kg	Products described under 2.1.7.1 calculated on a fat content basis	
319	Tertiary butylhydroquinone		"	
320	Butylated hydroxyanisole	200 mg/kg singly or in combination	"	
321	Butylated hydroxytoluene		"	
310	Propylgallate		"	
307	$\alpha$ -Tocopherol	750 mg/kg	"	

### 3.8 COLOURS (FOR DECORATION PURPOSE ONLY)

175	Gold	GMP	Products described	
174	Silver	GMP	under 2.1 and 2.2	

### 3.9 BULKING AGENTS

1200	Polydextrose A and N	GMP	Products described under 2.1 and 2.2
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### 3.10 PROCESSING AID

Hexane (62°C - 82°C)	Maximum Level	1 mg/kg	calculated on a fat content basis
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## 4 HYGIENE

- 4.1** It is recommended that the products covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the Recommended International Code of Practice – General Principles of Food Hygiene (CAC/RCP 1-1969, Rev 3-1997), and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.
- 4.2** 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).

## 5 LABELLING

In addition to the requirements of the Codex General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985 Rev. 1-1991), the following declarations shall be made:

### 5.1 NAME OF THE FOOD

- 5.1.1** Products described under Sections 2.1 and 2.2 of this Standard and complying with the appropriate requirements of the relevant section shall be designated according to the name listed in Section 2 under subsequent section and subject to the provisions under Section 5 of this Standard. The products defined in section 2.1.1 may be described as “*Bittersweet chocolate*”, “*Semi-sweet chocolate*”, “*Dark chocolate*” or “*Chocolat fondant*”.
- 5.1.1.1** When sugars are fully or partly replaced by sweeteners, an appropriate declaration should be included in proximity of the sales designation of the chocolate, mentioning the presence of sweeteners. *Example*: “X Chocolate with sweeteners”.
- 5.1.1.2** The use of vegetable fats in addition to Cocoa butter in accordance with the provisions of Section 2 shall be indicated on the label in association with the name and/or the representation of the product.

The authorities having jurisdiction may prescribe the specific manner in which this declaration shall be made.

### **5.1.2 Filled Chocolate**

**5.1.2.1** Products described under Section 2.2.2. shall be designated “Filled Chocolate”, “X Filled Chocolate”, “Chocolate with X Filling” or “Chocolate with X Centre”, where “X” is descriptive of the nature of the filling.

**5.1.2.2** The type of chocolate used in the external coating may be specified, whereby the designations used shall be the same as stated under Section 5.1.1 of this Standard.

**5.1.2.3** An appropriate statement shall inform the consumer about the nature of the centre.

### **5.1.3 A Chocolate or Praline**

Products in a single mouthful size described under Section 2.2.3 of this Standard shall be designated “A Chocolate” or “Praline”.

### **5.1.4 Assorted Chocolates**

Where the products described under Section 2.1 or 2.2 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” or “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.

### **5.1.5 Other Information Required**

**5.1.5.1** Any characterizing flavour, other than chocolate flavour shall be in the designation of the product.

**5.1.5.2** Ingredients, which are especially aromatic and characterize the product shall form part of the name of the product (e.g. Mocca Chocolate).

### **5.1.6 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.

## **5.2 DECLARATION OF MINIMUM COCOA CONTENT**

When required by the authority having jurisdiction, products described under Section 2.1 of this Standard, except for *white chocolat*, 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.

## **5.3 LABELLING OF NON-RETAIL CONTAINERS**

**5.3.1** Information required in Section 5.1 and 5.2 of this Standard and Section 4 of the *Codex 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.

**5.3.2** 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.

## **6 METHODS OF ANALYSIS AND SAMPLING**

### **6.1 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.

### **6.2 DETERMINATION OF COCOA BUTTER**

According to AOAC 963.15 or IOCCC 14-1972.

### **6.3 DETERMINATION OF FAT-FREE COCOA SOLID**

According to AOAC 931.05.

### **6.4 DETERMINATION OF FAT-FREE MILK SOLIDS**

According to IOCCC 17-1973 or AOAC 939.02.

### **6.5 DETERMINATION OF MILK FAT**

According to IOCCC 5-1962 or AOAC 945.34, 925.41B, 920.80.

### **6.6 DETERMINATION OF MOISTURE**

According to IOCCC 26-1988 or AOAC 977.10 (Karl Fischer method); or AOAC 931.04 or IOCCC 1-1952 (gravimetry).

### **6.7 DETERMINATION OF TOTAL FAT**

According to AOAC 963.15.

### **6.8 DETERMINATION OF NON-COCOA BUTTER VEGETABLE FAT IN CHOCOLATE AND CHOCOLATE PRODUCTS**

The following methods of analysis are the best available at the present time. Further systematic improvement is required. Documentation identifying the type of commercial blends of non-cocoa butter vegetable fats used must be made available upon request by competent authorities.

#### **6.8.1 *Detection of Non-Cocoa Butter Vegetable Fats in Chocolate***

Detecting sterol breakdown products in refined vegetable fats added to chocolate by method AOCS Ce 10/02 (02).

#### **6.8.2 *Quantitative Determination of Non-Cocoa Butter Vegetable Fats*<sup>^</sup>**

Determination of the triacylglycerols (C50, C52, C54) present in cocoa butters and non-cocoa butter vegetable fats by GC-FID in *J. Amer. Oil Chem. Soc.* (1980), **57**, 286-293. In milk chocolate, there is a need to correct for the milk fat

- **Interpretation:**

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<sup>^</sup> This method is intended to measure vegetable fats which are cocoa butter equivalents (CBE) i.e. SOS type triglycerides. Other vegetable fats can only be added in very limited amounts before they affect the physical properties of chocolate in a detrimental way. These can be determined by conventional methods i.e. fatty acid and triacylglycerol analyses.

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.