

# CODEX ALIMENTARIUS

INTERNATIONAL FOOD STANDARDS



Food and Agriculture  
Organization of  
the United Nations



World Health  
Organization

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## STANDARD FOR PRESERVED TOMATOES

CXS 13-1981

Adopted in 1981. Revised in 2007. Amended in 2013, 2017, 2022, 2023.

**2022 Amendment**

Following decisions taken at the Forty-fifth Session of the Codex Alimentarius Commission in December 2022, amendments were made in Section 8.3 Labelling of non-retail containers.

**2023 Amendment**

Following decisions taken at the Forty-sixth Session of the Codex Alimentarius Commission in December 2023, amendments were made in Section 9. Methods of analysis and sampling.

**2023 editorial correction**

An editorial correction was made to Section 2.3 to read “unwhole form” instead of “ not whole form.”

## 1 SCOPE

This standard (formerly CAC/RS 13-1969 Rev.1) applies to the products, as defined in Section 2 below, and offered for direct consumption, including for catering purposes or for repacking if required. This standard also applies to the product when indicated as being intended for further processing. The standard does not include dried tomatoes and preserved tomatoes containing other vegetables such as pepper and onions in quantities that materially alter the flavour, aroma and taste of the tomato component.

## 2 DESCRIPTION

### 2.1 Product definition

Preserved tomatoes is the product:

- a) prepared from fresh, washed, ripened tomatoes, conforming to the characteristics of the fruit of *Lycopersicon/Lycopersicum esculentum* P. Mill, of red or reddish varieties which are clean and sound. The tomatoes shall have had the stems and calices removed and where necessary, the core;
- b) packed with or without a suitable packing medium and seasoning ingredients appropriate to the product; and
- c) processed by heat, in an appropriate manner, before or after being hermetically sealed in a container, so as to prevent spoilage.

### 2.2 Varietal type

Tomatoes of distinct varietal groups (cultivars open pollinated or hybrids) with respect to shape or other similar physical characteristics may be designated as:

**2.2.1 Round:** globular or semi-globular shape.

**2.2.2 Cylinder, pear, egg or plum:** elongated shape.

### 2.3 Styles

Preserved tomatoes in these styles are prepared in whole or unwhole form. The whole form normally is prepared with peel removed; if the peel is not removed, the style is considered additionally as "unpeeled":

**2.3.1 Whole:** Tomatoes which keep their initial shape after processing.

**2.3.2 Unwhole (Pieces):** Tomatoes crushed or cut into sections whose shape may be irregular or regular.

For the unwhole tomatoes the style should be better specified according with the type of grinding or cutting:

- a) **diced:** tomatoes cut into cubes;
- b) **sliced:** tomatoes cut perpendicularly to the longitudinal axis in rounds with a regular thickness;
- c) **wedges:** tomatoes cut into four roughly equal parts; or
- d) **pulp or crushed or chopped:** tomatoes crushed, ground or pulped when appropriate.

### 2.3.3 Other styles

Any other presentation of the product should be permitted provided that the product:

- a) is sufficiently distinctive from other forms of presentation laid down in the standard;
- b) meets all relevant requirements of the standard, including requirements relating to limitations on defects, drained weight, and any other requirements which are applicable to that style which most closely resembles the style or styles intended to be provided for under this provision; and
- c) is adequately described on the label to avoid confusing or misleading the consumer.

### 2.4 Types of pack

**2.4.1 Solid pack** – without any added packing medium.

**2.4.2 Regular pack** – with a packing medium added, as specified in Section 3.1.2.

### 3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

#### 3.1 Composition

##### 3.1.1 *Basic ingredients*

Tomatoes as defined in Section 2 and packing medium when appropriate, as defined in Section 3.1.2.

##### 3.1.2 *Packing media*

Preserved tomatoes may be packed in the following packing media:

- a) **juice:**<sup>i</sup> the liquid obtained from ripened tomatoes, from the residue resulting from preparing tomatoes for canning or by diluting tomato concentrates;
- b) **tomato puree or tomato concentrate:** as described in the *Standard for Processed Tomato Concentrates* (CXS 57-1981);<sup>1</sup>
- c) **pulp:** skinless ground tomatoes; or
- d) **water:** only in unpeeled preserved tomatoes.

##### 3.1.3 *Other permitted ingredients*

- a) spices, aromatic herbs (such as basil leaves) and natural extracts of these and seasonings excluding tomato flavouring;
- b) salt (sodium chloride) in accordance with the *Standard for Food Grade Salt* (CXS 150-1985);<sup>2</sup> or
- c) when acidifying agents are used, sugars, as listed in the *Standard for Sugars* (CXS 212-1999)<sup>3</sup> with specific labelling.

#### 3.2 Quality criteria

Preserved tomatoes shall have normal colour characteristic for ripened tomatoes, properly processed, a normal flavour and odour free from flavours or odours foreign to the product. Preserved tomatoes with special ingredients shall have a flavour characteristic of that imparted by the tomatoes and the other substances used.

##### 3.2.1 *Definitions of defects and other terms used in Section 3.2*

- 3.2.1.1 *Whole or almost whole:* a tomato of any size in which the contour is not materially altered by coring or trimming; the unit may be readily restored to practically its original conformation; it may be slightly cracked or split but not to the extent that there is substantial loss of shape.
- 3.2.1.2 *Objectionable core material:* tough and fibrous texture or tomato tissue representing the tomato core that is definitely objectionable as to appearance and edibility.
- 3.2.1.3 *Blemishes:* areas into which lesions on the surface have penetrated and as a result thereof contrast strongly in colour or texture with the normal tomato tissue and should normally have been removed during processing.
- 3.2.1.4 *Extraneous plant material:* tomato leaves, stems, calyx bracts, and similar plant material.
- 3.2.1.5 *Peel (or skin):* the residual pieces of skin, having a length higher than 5 mm, which adheres to the tomato flesh or is found loose in the container.

##### 3.2.2 *Size or wholeness*

Size or wholeness, as such, is only a factor in the style designated as “whole” style. Preserved tomatoes of “whole” style shall consist of not less than 65 percent m/m of drained tomatoes in whole or almost whole units, except that in any container there may be one unit that is not whole. For small cans (less than 500 g net weight) this value shall be 70 percent.

##### 3.2.3 *Defects and allowances*

The finished product shall be prepared from such materials and under such practices that it shall be substantially free from objectionable core material and extraneous plant material and shall not contain excessive defects whether specifically mentioned in this standard or not. Certain common defects should not be present in amounts greater than the following limitations:

##### 3.2.3.1 *Peel (only for whole and peeled styles):*

Whole peeled: not more than 30 cm<sup>2</sup> aggregate area per kg of total contents.

<sup>i</sup> In this standard, “juice” must not be intended as the fruit juice (including tomato juice) as defined in the *General Standard for Fruit Juices and Nectars* (CXS 247-2005).

### 3.2.3.2 *Blemishes*

Not more than 3.5 cm<sup>2</sup> aggregate area per kg of total contents.

### 3.2.3.3 *Mould count*

Mould count for preserved tomatoes to be set according to the legislation of the country of retail sale.

### 3.2.3.4 *pH*

The pH must not exceed 4.5.

## 3.3 *Classification of “defectives”*

A container that fails to meet one or more of the applicable quality requirements, as set out in Section 3.2, should be considered as a “defective”.

## 3.4 *Lot acceptance*

A lot should be considered as meeting the applicable quality requirements referred to in Section 3.2 when:

- a) the number of “defectives”, as defined in Section 3.3, does not exceed the acceptance number c) of the appropriate sampling plan with an AQL of 6.5; and
- b) the maximum allowance for mould count is not exceeded (see Section 3.2.3.3).

These acceptance criteria do not apply to non-retail containers.

## 4 **FOOD ADDITIVES**

Firming agents listed in Table 3 of the *General Standard for Food Additives* (CXS 192-1995)<sup>4</sup> and certain other Table 3 food additives (as indicated in Table 3) are acceptable for use in foods conforming to this standard.

## 5 **CONTAMINANTS**

5.1 The products covered by this standard shall comply with the maximum levels of the *General Standard for Contaminants and Toxins in Food and Feed* (CXS 193-1995).<sup>5</sup>

5.2 In order to consider the concentration of the product, the determination of the maximum levels for contaminants shall take into account the natural total soluble solids, the reference value being 4.5 for fresh fruit.

5.3 The products covered by this standard shall comply with the maximum residue limits for pesticides established by the Codex Alimentarius Commission.

5.4 In order to consider the concentration of the product, the determination of the maximum pesticide residue limits shall take into account the natural total soluble solids, the reference value being 4.5 for fresh fruit.

## 6 **HYGIENE**

6.1 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 *General Principles of Food Hygiene* (CXC 1-1969),<sup>6</sup> the *Code of Hygienic Practice for Low and Acidified Low-Acid Canned Foods* (CXC 23-1979)<sup>7</sup> and other relevant Codex texts such as codes of hygienic practice and codes of practice.

6.2 The products should comply with any microbiological criteria established in accordance with the *Principles and Guidelines for the Establishment and Application of Microbiological Criteria Related to Foods* (CXG 21-1997).<sup>ii,8</sup>

## 7 **WEIGHTS AND MEASURES**<sup>iii</sup>

### 7.1 **Fill of container**

#### 7.1.1 *Minimum fill*

The container should be well filled with the product (including packing medium when appropriate) which should occupy not less than 90 percent (minus any necessary head space according to good manufacturing practices) of the water capacity of the container. The water capacity of the container is the volume of distilled water at 20 °C which the sealed container will hold when completely filled.

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<sup>ii</sup> For products that are rendered commercially sterile in accordance with the *Code of Hygienic Practice for Low and Acidified Low-Acid Canned Foods* (CXC 23-1979), microbiological criteria are not recommended as they do not offer benefit in providing the consumer with a food that is safe and suitable for consumption.

<sup>iii</sup> The provisions in this section do not apply to non-retail containers.

### 7.1.2 **Classification of “defectives”**

A container that fails to meet the requirement for minimum fill of Section 7.1.1 should be considered as a “defective”.

### 7.1.3 **Lot acceptance**

A lot should be considered as meeting the requirement of Section 7.1.1 when the number of “defectives”, as defined in Section 7.1.2, does not exceed the acceptance number c) of the appropriate sampling plan with an AQL of 6.5.

### 7.1.4 **Minimum drained weight**

**7.1.4.1** The drained weight of the product should be not less than 50 percent, calculated on the basis of the weight of distilled water at 20 °C which the sealed container will hold when completely filled.<sup>iv</sup>

#### 7.1.4.2 **Lot acceptance**

The requirements for minimum drained weight should be deemed to be complied with when the average drained weight of all containers examined is not less than the minimum required, provided that there is no unreasonable shortage in individual containers.

## 8 **LABELLING**

**8.1** The product covered by the provisions of this standard shall be labelled in accordance with the *General Standard for the Labelling of Pre-packaged Foods* (CXS 1-1985).<sup>9</sup> In addition, the following specific provisions apply:

### 8.2 **Name of the product**

**8.2.1** The name of the product shall be:

- a) “peeled tomatoes” or “whole peeled tomatoes”, for the products “whole”, if the peel has been removed;
- b) “tomatoes”, for the other presentations;
- c) “unpeeled tomatoes”, if the peel has not been removed or if the allowances indicated in Section 3.2.3.1 are not respected.

**8.2.2** The styles, as defined in Section 2.3 and the packing media defined in Section 3.1.2 shall be declared as part of the name or in close proximity to the name.

**8.2.3** If an added ingredient, as defined in Section 3.1.3, alters the flavour characteristic of the product, the name of the food shall be accompanied by the term “flavoured with X” or “X flavoured” as appropriate.

**8.2.4 *Other styles*** – If the product is produced in accordance with the other styles provision (Section 2.3.3), the label should contain in close proximity to the name of the product such additional words or phrases that will avoid misleading or confusing the consumer.

**8.2.5** The following may be stated on the label:

- a) **the type:** “solid pack” if the pack complies with Section 2.4.1;
- b) **the packing material:** “juice” or other, if the pack complies with Section 2.4.2.

### 8.3 **Labelling of non-retail containers**

The labelling of non-retail containers should be in accordance with the *General Standard for the Labelling of Non-Retail Containers of Foods* (CXS 346-2021).<sup>10</sup>

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<sup>iv</sup> For non-metallic rigid containers such as glass jars, the basis for the determination should be calculated on the weight of distilled water at 20 °C which the sealed container will hold when completely filled less 20 ml.

## 9 METHODS OF ANALYSIS AND SAMPLING

For checking the compliance with this standard, the methods of analysis and sampling contained in the *Recommended Methods of Analysis and Sampling* (CXS 234-1999)<sup>11</sup> relevant to the provisions in this standard, shall be used.

### NOTES

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<sup>1</sup> FAO and WHO. 1981. *Standard for Processed Tomato Concentrates*. Codex Alimentarius Standard, No. CXS 57-1981. Codex Alimentarius Commission. Rome.

<sup>2</sup> FAO and WHO. 1985. *Standard for Food Grade Salt*. Codex Alimentarius Standard, No. CXS 150-1985. Codex Alimentarius Commission. Rome.

<sup>3</sup> FAO and WHO. 1999. *Standard for Sugars*. Codex Alimentarius Standard, No. CXS 212-1999. Codex Alimentarius Commission. Rome.

<sup>4</sup> FAO and WHO. 1995. *General Standard for Food Additives*. Codex Alimentarius Standard, No. CXS 192-1995. Codex Alimentarius Commission. Rome.

<sup>5</sup> FAO and WHO. 1995. *General Standard for Contaminants and Toxins in Food and Feed*. Codex Alimentarius Standard, No. CXS 193-1995. Codex Alimentarius Commission. Rome.

<sup>6</sup> FAO and WHO. 1969. *General Principles of Food Hygiene*. Codex Alimentarius Code of Practice, No. CXC 1-1969. Codex Alimentarius Commission. Rome.

<sup>7</sup> FAO and WHO. 1979. *Code of Hygienic Practice for Low and Acidified Low-Acid Canned Foods*. Codex Alimentarius Code of Practice, No. CXC 23-1979. Codex Alimentarius Commission. Rome.

<sup>8</sup> FAO and WHO. 1997. *Principles and Guidelines for the Establishment and Application of Microbiological Criteria Related to Foods*. Codex Alimentarius Guideline, No. CXG 21-1997. Codex Alimentarius Commission. Rome.

<sup>9</sup> FAO and WHO. 1985. *General Standard for the Labelling of Pre-packaged Foods*. Codex Alimentarius Standard, No. CXS 1-1985. Codex Alimentarius Commission. Rome.

<sup>10</sup> FAO and WHO. 2021. *General Standard for the Labelling of Non-Retail Containers of Foods*. Codex Alimentarius Standard, No. CXS 346-2021. Codex Alimentarius Commission. Rome.

<sup>11</sup> FAO and WHO. 1999. *Recommended Methods of Analysis and Sampling*. Codex Alimentarius Standard, No. CXS 234-1999. Codex Alimentarius Commission. Rome.