

# CODEX ALIMENTARIUS

INTERNATIONAL FOOD STANDARDS



Food and Agriculture  
Organization of  
the United Nations



World Health  
Organization

E-mail: [codex@fao.org](mailto:codex@fao.org) - [www.codexalimentarius.org](http://www.codexalimentarius.org)

---

**GENERAL STANDARD FOR BOTTLED/**

**PACKAGED DRINKING WATERS**

**(Other than Natural Mineral Waters)**

**CXS 227-2001**

**Adopted in 2001. Amended in 2019.**

## 1. SCOPE

This Standard applies to waters for drinking purposes other than Natural Mineral Waters, as defined in the Revised Codex Standard CXS 108-1981, that are prepackaged/bottled<sup>1</sup> and are suitable for human consumption.

## 2. DESCRIPTION

### 2.1 Packaged waters

**“Packaged waters”**, other than natural mineral waters, are waters for human consumption and may contain minerals, naturally occurring or intentionally added; may contain carbon dioxide, naturally occurring or intentionally added; but shall not contain sugars, sweeteners, flavourings or other foodstuffs.

#### 2.1.1 Waters defined by origin

**“Waters defined by origin”**, whether they come from the underground or from the surface, defined under the present standard share the following characteristics:

- a) they originate from specific environmental resources without passing through a community water system;
- b) precautions have been taken within the vulnerability perimeters to avoid any pollution of, or external influence on, the chemical, microbiological and physical qualities of water at origin;
- c) collecting conditions which guarantee the original microbiological purity and essential elements of their chemical make-up at origin;
- d) from the microbiological standpoint, are constantly fit for human consumption at their source and are kept in that state with particular hygienic precautions until and while packaging in accordance with provisions of sections 3 and 4;
- e) are not subject to any modification or treatment other than those permitted under Section 3.1.1.

#### 2.1.2 Prepared waters

**“Prepared waters”** are waters that do not comply with all the provisions set for waters defined by origin under subsection 2.1.1. They may originate from any type of water supply.

## 3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

### 3.1 Modifications and handling of packaged waters

#### 3.1.1 Permitted physicochemical modifications and antimicrobial treatments for the waters defined by origin

Waters defined by origin must not, prior to packaging, be modified or subjected to treatments other than those described in subsections below with the proviso that these modifications or treatments and the processes<sup>2</sup> used to achieve them do not change the essential physicochemical characteristics nor compromise the chemical, radiological and microbiological safety of these waters when packaged:

##### 3.1.1.1 Selective treatments that modify the original composition:

- reduction and/or elimination of dissolved gases (and resulting possible change in pH);
- addition of carbon dioxide (and resulting change in pH) or re-incorporation of the original carbon dioxide present at emergence;
- reduction and/or elimination of unstable constituents such as iron, manganese, sulphur (as S<sup>0</sup> or S<sup>-</sup>) compounds and carbonates in excess, under normal conditions of temperature and pressure, of the calco-carbonate equilibrium;
- addition of air, oxygen or ozone on condition that the concentration of by-products resulting from the ozone treatment is below the tolerance established under Section 3.2.1;
- decrease and/or increase in temperature;
- reduction and/or separation of elements originally present in excess of maximum concentrations or of maximum levels of radioactivity set according to Section 3.2.1.

<sup>1</sup> As defined in *General Standard for the Labelling of Prepackaged Foods*: “prepackaged foods to be offered as such to consumer or for catering purposes”.

<sup>2</sup> These processes include the techniques listed in Section 4.1 of the *Code of Hygienic Practice for Bottled/Packaged Drinking Waters (Other Than Natural Mineral Waters)* with the proviso that such techniques comply with the provisions outlined in Section 3.2.1 of the present Standard.

### 3.1.1.2 Antimicrobial treatments for the waters defined by origin

Antimicrobial treatments may be used singly or in combination solely in order to conserve the original microbiological fitness for human consumption, original purity and safety of waters defined by origin.

### 3.1.2 Physical and chemical modifications and antimicrobial treatments for prepared waters

Prepared waters can be subjected to any microbial treatments and any treatments that modify the physical and chemical characteristics of the original water on condition that such treatments result in prepared waters that comply with all provisions of Section 3.2 and 4 regarding the chemical, microbiological and radiological safety requirements for prepackaged waters.

## 3.2 Chemical and radiological quality of packaged waters

### 3.2.1 Health-related limits for chemical and radiological substances

No packaged water shall contain substances or emit radioactivity in quantities that may be injurious to health. To this effect, all packaged water shall comply with the health-related requirements of the most recent "Guidelines for Drinking Water Quality" published by the World Health Organization.

### 3.2.2 Addition of minerals

Any addition of minerals to water before packaging must comply with the provisions outlined in the present standard and, where applicable, with the provisions in the *General Principles for the Addition of Essential Nutrients to Foods* (CXG 9-1987).

## 4. FOOD ADDITIVES

No additives except for the addition of carbon dioxide to produce carbonated products.

## 5. HYGIENE

### 5.1 Code of practice

It is recommended that all waters covered by the provisions of this Standard be collected, transported, stored, and if applicable treated, and packaged in accordance with the *General Principles of Food Hygiene* (CXC 1-1991) and in accordance with the *Code of Hygienic Practice for Bottled/Packaged Drinking Waters (Other than Natural Mineral Waters)* (CXC 48-2001).

### 5.2 Approval and inspection of the source for waters defined by origin

Initial approval or inspection of the source of waters defined by origin should be based upon appropriate scientific study adapted to the type of resource (hydrogeology, hydrology, etc.) and based on field survey of the source and of the recharge zone that shall demonstrate the safety of the source, the facilities and collection operations. The initial inspection of the source must be confirmed on a regular basis by periodic monitoring of the essential constituents, temperature, flow (in the case of natural springs) and the chemical and radiological factors specified under Section 3.2.1 and the microbiological standards established in conformity with the latest "Guidelines for Drinking Water Quality" published by the World Health Organization. The results of source inspection should be made available to the importing country upon request.

## 6. LABELLING REQUIREMENTS

In addition to the *General Standard for the Labelling of Prepackaged Foods* (CXS 1-1985), the following provisions shall apply:

### 6.1 Name of the product

Countries may select appropriate names for products, to be specified in national legislation, that reflect local consumer expectations arising from cultural and traditional practices.

However, in establishing such labelling requirements, consideration should be given to ensuring that any product complying with this standard may be represented in a way that reflects its classification within the standard and that consumers are not misled.

6.1.1 The name of the product shall be as follows, depending on its classification in accordance with Section 2.1.

#### 6.1.1.1 Waters defined by origin

Any appropriate name (or names) in the case of waters that comply with the criteria described under Section 2.1.1 and that meet additional criteria established by each country including restricting the name of such water to certain names or only one name. In the case of blends or mixtures of waters from different environment resources, each resource shall be labelled.

Only waters defined by origin, in accordance with the present standard, can be represented by names that refer to the origin or give an impression of specific origin. The names used or chosen by the countries, in accordance with the present standard, to represent prepared waters cannot apply to waters defined by origin and vice versa. When applicable, the additional criteria established by the countries for the definition of the chosen names cannot contravene the provisions of the present standard.

#### **6.1.1.2 Prepared waters**

Any appropriate name (or names) to designate prepared waters described under Section 2.1.2 and that meet additional criteria established by each country including restricting the name of such water to certain names or only one name.

#### **6.1.2 Carbonation**

##### **6.1.2.1** The following respective declarations should appear on the label in accordance with the following criteria:

In the case of ground waters defined by origin, "*naturally carbonated*" or "*naturally sparkling*" if, after packaging, carbon dioxide spontaneously and visibly is given off under normal conditions of temperature and pressure and the carbon dioxide originates from the source at emergence and is present at the same level as was present originally at emergence, with a possible re-incorporation of gas from the same source, taking into consideration a technical tolerance of  $\pm 20\%$ .

In the case of ground waters defined by origin, "*fortified with carbon dioxide*" if, after packaging, carbon dioxide spontaneously and visibly is given off under normal conditions of temperature and pressure and the carbon dioxide originates from the source at emergence but is present at a level at least 20% higher than the quantity present originally at emergence, with a possible re-incorporation of gas from the same source.

In the case of all waters, "*carbonated*" or "*sparkling*" if, after packaging, carbon dioxide spontaneously and visibly is given off under normal conditions of temperature and pressure and the carbon dioxide does not entirely originate from the same source as that of the water at emergence.

##### **6.1.2.2** Words such as "*non carbonated*" or "*non sparkling*" or "*still*" may apply if, after packaging, there is no visible and spontaneous release of carbon dioxide under normal conditions of temperature and pressure when the packaged is opened.

#### **6.2 Additional labelling requirements**

##### **6.2.1 Chemical composition**

The total dissolved solid content of packaged waters may be declared on the principal display panel. With regard to waters defined by origin, the chemical composition that confers the characteristics to the product may also be declared on the label.

##### **6.2.2 Geographic location**

Where required by the authorities having jurisdiction, the precise geographic location of the specific environmental resource and/or the source of a water defined by origin must be declared in the manner prescribed in the applicable legislation.

##### **6.2.3 Prepared water from a water distribution system**

When prepared water is supplied by a public or private tap water distribution system and subsequently packaged/bottled, but has not undergone further treatment that would modify its original composition or to which carbon dioxide or fluoride have been added, the wording "*From a public or private distribution system*" must appear on the label along with the name of the product on the principal display panel.

##### **6.2.4 Treatments**

Where required by the authorities having jurisdiction, if a packaged/bottled water has been modified by a permitted treatment before packaging, the modification or the result of the treatment must be declared on the label in a manner prescribed in the applicable legislation.

#### **6.3 Labelling prohibitions**

##### **6.3.1** No claims concerning medicinal (preventive, alleviative or curative) effects shall be made in respect of the properties of the product covered by this Standard. Claims of other beneficial effects related to the health of the consumer shall not be made unless true and not misleading.

##### **6.3.2** The name of the locality, hamlet or specified place may not form part of the trade name unless it refers to a water defined by origin collected at the place designated by that trade name.

**6.3.3** The use of any statement or of any pictorial device which may create confusion in the mind of the public or in any way mislead the public about the nature, origin, composition and properties of packaged waters put on sale is prohibited.

**7. METHODS OF ANALYSIS AND SAMPLING**

See relevant Codex texts on methods of analysis and sampling.