

Joint FAO/WHO Food Standards Programme
CODEX ALIMENTARIUS COMMISSION

VOLUME 6

CODEX ALIMENTARIUS

FRUIT JUICES AND RELATED
PRODUCTS

SECOND EDITION



FOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONS
WORLD HEALTH ORGANIZATION



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VOLUME SIX

Fruit juices and related products



**FOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONS
WORLD HEALTH ORGANIZATION**



Rome, 1992

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INTRODUCTION

FAO/WHO FOOD STANDARDS PROGRAMME AND CODEX ALIMENTARIUS COMMISSION

The FAO/WHO Codex Alimentarius Commission (the Commission) was established to implement the Joint FAO/WHO Food Standards Programme. Membership of the Commission comprises those Member Nations and Associate Members of FAO and/or WHO which have notified the Organizations of their wish to be considered as Members. By 30 April 1992, 141 countries had become Members of the Commission. Other countries which participate in the work of the Commission or of its subsidiary bodies in an observer capacity are expected to become Members in the near future.

The purpose of the Joint FAO/WHO Food Standards Programme is to protect the health of consumers and to ensure fair practices in the food trade; to promote coordination of all food standards work undertaken by international governmental and non-governmental organizations; to determine priorities and initiate and guide the preparation of draft standards through and with the aid of appropriate organizations; to finalize standards and after acceptance by Governments, publish them in a Codex Alimentarius either as regional or world-wide standards.

The Codex Alimentarius Commission, at its 14th Session in July 1981, adopted a revised Procedure for the Elaboration of Codex Standards, as set forth in the Procedural Manual of the Commission (7th Edition), under which the Commission adopts Codex standards at Step 8 of the Procedure instead of, as heretofore, recommended standards. The Commission decided that the Codex standards, which are sent to all Member States and Associate Members of FAO and/or WHO for acceptance, together with details of notifications received from Governments with respect to the acceptance or otherwise of Codex standards and other relevant information, constitute the Codex Alimentarius.

Acceptance of Codex Commodity Standards

The standards contained in this publication are submitted to all Member Nations and Associate Members of FAO and/or WHO for acceptance in accordance with the acceptance procedure for Codex Commodity Standards contained in paragraph 4 of the General Principles of the Codex Alimentarius, under which the standards may be accepted in one of three ways: full acceptance, target acceptance, acceptance with specified deviations. The General Principles of the Codex Alimentarius are contained in the Procedural Manual of the Commission (7th Edition).

Letters or instruments of acceptance should specify the type of acceptance in respect of each Codex standard. To assist Governments in notifying their acceptance or otherwise, a copy of Acceptance Form 1 relating to commodity standards has already been made available.

Governments which are unable to accept a particular standard in one of the three ways mentioned above may, nevertheless, be in a position to indicate whether products conforming to that standard may be distributed freely within their territorial jurisdictions, as provided for under paragraph 4.B of the General Principles, or may be permitted to be distributed subject to certain specified conditions. Governments are urged to take this possibility into account in cases where acceptance cannot be given.

Introduction

The Joint Office of the FAO/WHO Food Standards Programme, FAO Headquarters, Rome, will be pleased to provide to the appropriate authorities in each country any information, explanations or assistance that may be required with respect to the Codex standards, to the acceptance procedure or to the activities of the Codex Alimentarius Commission in general.

Replies, utilizing Acceptance Forms, should be addressed to the Chief, Joint FAO/WHO Food Standards Programme, FAO, 00100 Rome, Italy.

Full details of acceptances and other responses from Governments are published periodically in a Summary of Acceptances of World-wide and Regional Codex Standards and Codex Maximum Limits for Pesticide Residues.

For further information concerning the procedures of the Commission, readers should refer to the Procedural Manual of the Codex Alimentarius Commission (7th Edition).

EXPLANATORY NOTES CONCERNING CODEX STANDARDS

General

The standards and methods of analysis included in this publication were elaborated by the Joint ECE/Codex Alimentarius Group of Experts on Standardization of Fruit Juices.

The Codex standards for fruit juices, concentrated fruit juices and fruit nectars preserved exclusively by physical means contained in this publication supersede those previously published in the CAC/RS reference series. The Codex standards set out in this publication represent the standards as originally adopted by the Codex Alimentarius Commission and as may have been amended by the 14th or earlier sessions of the Commission. The Codex standards contained in this publication may be further amended and additional standards for fruit juices, concentrated fruit juices and fruit nectars may be adopted by the Commission. Thus amendments to this publication may be issued after future sessions of the Commission.

Referencing of Codex Standards

The reference "CAC/RS" has been replaced by "CODEX STAN". The number following "CODEX STAN" is the same as that following the former "CAC/RS". The year 1981 is the year of the Commission Session which decided that the former recommended standards should, henceforth, be designated Codex standards and also, in the case of those standards adopted in 1981, the year of their adoption as Codex standards.

As regards Codex methods of analysis, the previous referencing "CAC/RM" has been retained.

Food Additive Provisions

(a) General

The food additives provided for in the standards contained in this volume have been evaluated for their safety-in-use by the Joint FAO/WHO Expert Committee on Food Additives. The food additive provisions set out in the standards have been endorsed by the Codex Committee on Food Additives. Where the food additive provisions have been only "temporarily endorsed", this is so stated in the standards. Food additive provisions which have been "temporarily endorsed" are subject to reconsideration in the light of further work and resultant data. Thus a temporary endorsement will eventually be confirmed or withdrawn or modified in some way.

The lists of food additives contained in the standards are "permitted lists" from which one or more additives may be selected for use in the manufacture of the product concerned.

Specifications of identity and purity have been established for the food additives provided for in the standards by the Joint FAO/WHO Expert Committee on Food Additives. These either have been or will be adopted by the Commission as Codex specifications. The specifications themselves, seen separately from the

Explanatory Notes

standards, are advisory and are not submitted to Governments for acceptance. However, food additives listed in Codex standards should comply at least with the minimum requirements for safety laid down in the specifications for these additives as evaluated by JECFA.

The term "maximum level" means, unless otherwise qualified, the maximum amount of the additive permitted to be present in the final or end-product, i.e., the entire contents of a container.

The term "Limited by good manufacturing practice (GMP)" means that the amount of the food additive in the food is restricted to a quantity no greater than that required to achieve the desired technological effect under "good manufacturing practice" and in accordance with the Codex General Principles for the Use of Food Additives.

(b) Carry-Over Principle

The Codex Alimentarius Commission at its 11th Session, endorsed the Principle Relating to the Carry-Over of Additives into Food as a Guide for Codex Commodity Committees when preparing Codex standards. Paragraph 2 of the Principle, the text of which is to be found in Volume I of the Codex Alimentarius Chapter 5.2, states that "the Principle applies to all Codex standards, unless otherwise stated in such standards". The Joint ECE/Codex Alimentarius Group of Experts decided that the Carry-Over Principle was not relevant to the standards elaborated by the Group of Experts.

Labelling

The Commission, at its 13th Session, agreed that: (i) food additives carried over in accordance with paragraph 3 of the Principle Relating to the Carry-Over of Additives into Food and (ii) processing aids, as defined in the Procedural Manual of the Codex Alimentarius Commission (7th Edition) need not be declared on the label (list of ingredients).

Methods of Analysis

Methods of analysis are included in Codex standards:

- (a) By reference to methods of analysis which have been developed by the Codex Alimentarius Commission;
- (b) By reference to suitable methods of analysis of other internationally recognized organizations which have been for this purpose adopted by the Codex Alimentarius Commission. The full text of these methods can be obtained from the following organizations, as applicable:

International Federation of Fruit Juice Producers (IFJU)
Swiss Fruit Union
Baarestrasse 88
CH-6300 Zug 2 (Switzerland)

Association of Official Analytical Chemists (AOAC)
1111 North 19th Street, Suite 210
Arlington, Va 22209
USA

Office International de la Vigne et du Vin
11, rue Roquépine
Paris (8ème)
France

The methods of analysis included in Codex standards are primarily intended as international methods for the verification of provisions in the standards. Definitions of the different types of Codex methods of analysis and the criteria for their selection are given in the Procedural Manual of the Codex Alimentarius Commission (7th Edition). The classification of Codex methods of analysis into the different types, as defined in the Procedural Manual of the Commission, is under consideration by the Codex Committee on Methods of Analysis and Sampling.

Definitions

The Joint ECE/Codex Alimentarius Group of Experts on Standardization of Fruit Juices agreed that the definitions outlined below should be used as guidelines for the scope of work and terms of reference, since they reflect the standing philosophy of the Group on fruit juices and fruit nectars.

(i) Fruit Juice

Unfermented but fermentable juice, intended for direct consumption, obtained by a mechanical process from sound, ripe fruits, preserved exclusively by physical means. The juice may be turbid or clear. The juice may have been concentrated and later reconstituted with water suitable for the purpose of maintaining the essential composition and quality factors of the juice. The addition of sugars or acids can be permitted but must be endorsed in the individual standard.

(ii) Concentrated Fruit Juice

Unfermented product, which is capable of fermentation after reconstitution, obtained from the juice of sound, ripe fruits, from which the water has been removed to the extent that the product has a soluble solids content of not less than double the content of the original juice intended for direct consumption. The product must be preserved exclusively by physical means and may be clear or turbid. The addition of sugars or acids can be permitted, but must be endorsed in the individual standard.

(iii) Fruit Nectar

Unfermented but fermentable non-pulpy or pulpy product, intended for direct consumption, obtained by blending the fruit juice and/or the total edible part of sound, ripe fruits, concentrated or unconcentrated, with water and sugars or honey and preserved exclusively by physical means. Other addition of acids may be permitted but must be endorsed in the individual standard. The fruit and/or fruit juice content in the product shall normally not be less than 30 percent.

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PART I

CODEX STANDARDS FOR FRUIT JUICES

**CODEX STANDARD FOR ORANGE JUICE PRESERVED EXCLUSIVELY
BY PHYSICAL MEANS ¹
CODEX STAN 45-1981
(World-wide Standard)**

1. DESCRIPTION

Unfermented but fermentable juice, intended for direct consumption, obtained by a mechanical process from the endocarp of sound, ripe oranges (*Citrus sinensis* (L.) Osbeck), preserved exclusively by physical means.² The juice may contain up to 10% m/m of mandarin juice (*Citrus reticulata* Blanco). The juice may have been concentrated and later reconstituted with water suitable for the purpose of maintaining the essential composition and quality factors of the juice.

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 Soluble Solids

The soluble orange solids content of orange juice (exclusive of added sugars) shall be not less than 10.0% m/m as determined by refractometer at 20 °C, uncorrected for acidity and read as °Brix on the International Sucrose Scales.

2.1.1 Where the juice had been obtained using concentrated juice with the addition of water, the soluble orange juice solids content shall be not less than 11% m/m as determined by refractometer at 20 °C, uncorrected for acidity and read as °Brix on the International Sucrose Scales.

2.2 Sugars

One or more solid sugars, as defined by the Codex Alimentarius Commission, may be added. The total quantity of added sugars shall not exceed 50 g/kg.

2.3 Ethanol Content

The ethanol content shall not exceed 3 g/kg.

2.4 Volatile Acids

Only traces of volatile acids are allowed.

2.5 Essential Oils

The essential oils content shall not exceed 0.4 ml/kg.

¹ Formerly CAC/RS 45-1971.

² For the purpose of this standard and at this time preservation by physical means does not include ionizing radiation.

2.6 Organoleptic Properties

The product shall have the characteristic colour, aroma and flavour of orange juice. Natural volatile orange juice components may be restored to any orange juice from which natural volatile orange juice components have been removed.

2.7 Use of Concentrates

The addition of concentrate to juice is permitted. Only concentrate from orange (*Citrus sinensis* (L.) Osbeck) and mandarine (*Citrus reticulata* Blanco) may be used.

3. CONTAMINANTS

	<u>Maximum level</u>
3.1 Arsenic (As)	0.2 mg/kg
3.2 Lead (Pb)	0.3 mg/kg ¹
3.3 Copper (Cu)	5 mg/kg
3.4 Zinc (Zn)	5 mg/kg
3.5 Iron (Fe)	15 mg/kg
3.6 Tin (Sn)	250 mg/kg ¹
3.7 Sum of copper, zinc and iron	20 mg/kg
3.8 Sulphur dioxide	10 mg/kg

4. HYGIENE

4.1 It is recommended that the products covered by the provisions of this standard be prepared in accordance with the Recommended International Code of Hygienic Practice for Canned Fruit and Vegetable Products (Ref. No. CAC/RCP 2-1969) and the General Principles of Food Hygiene (Ref. No. CAC/RCP 1-1969, Rev. 2-1985) recommended by the Codex Alimentarius Commission.

4.2 When tested by appropriate methods of sampling and examination, the product:

- (a) shall be free from microorganisms capable of development under normal conditions of storage; and
- (b) shall not contain any substances originating from microorganisms in amounts which may represent a hazard to health.

5. WEIGHTS AND MEASURES

5.1 Fill of Container

5.1.1 Minimum Fill

The orange juice shall occupy not less than 90% v/v 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.

¹ These limits remain under review.

6. MARKING OR LABELLING

6.1 Containers Destined for the Final Consumer

In addition to the requirements of the Codex General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985, Codex Alimentarius, Volume 1), the following specific provisions apply:

6.1.1 The Name of the Food

6.1.1.1 The name of the product shall be "orange juice", except that where sugar or sugars have been added in a quantity greater than 15 g/kg, the words "x added" shall plainly and conspicuously accompany the name "orange juice", where "x" represents the name or names of the sugar or sugars added.

6.1.1.2 If the ratio of the total soluble solids, as determined in 2.1, to the total titratable acid expressed as anhydrous citric acid is more than 15 to 1, the word "sweetened" may be used in lieu of the statement "x added".

6.1.2 List of Ingredients

6.1.2.1 A complete list of ingredients, including the presence of juices of varieties of *Citrus reticulata*, if any, by common name, shall be declared on the label in descending order of proportion, except that water added for reconstitution of juice according to Section 1 need not be declared.

6.1.2.2 In the case of orange juice made from concentrate, the fact of reconstitution shall be declared in the list of ingredients as follows: "orange juice made from concentrate" or "reconstituted orange juice" or "orange juice made from concentrated orange juice". If there are no ingredients to be listed in accordance with Section 6.1.2.1, the expression "orange juice made from concentrate" or "reconstituted orange juice" or "orange juice made from concentrated orange juice" shall appear on the label.

6.1.3 Additional Requirements

The following additional specific provisions shall apply:

6.1.3.1 No fruit or fruit juices may be represented pictorially on the label except oranges or orange juice.

6.1.3.2 Where orange juice requires to be kept under conditions of refrigeration, there shall be information for keeping and, if necessary, thawing of the product.

6.1.4 Date Marking

The "date of minimum durability" shall be declared by the month and year in uncoded numerical sequence except that for products with a shelf-life of more than 18 months the year will suffice.

6.1.5 Storage Instructions

Where practicable, storage instructions should be in close proximity to the date marking.

6.2 Non-Retail Containers

In the case of orange juice in bulk, the information required by Section 6.1 shall either be given on the container or in accompanying documents, except that the name of the product and the name and address of the manufacturer or packer should appear on the container. However, the name and address of the manufacturer or packer may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

7. METHODS OF ANALYSIS AND SAMPLING

See Part VI of this publication.