

# codex alimentarius commission



FOOD AND AGRICULTURE  
ORGANIZATION  
OF THE UNITED NATIONS

WORLD  
HEALTH  
ORGANIZATION



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Agenda Item 3(a)

CX/FJ 03/3  
January 2003

## JOINT FAO/WHO FOOD STANDARDS PROGRAMME AD HOC INTERGOVERNMENTAL CODEX TASK FORCE ON FRUIT AND VEGETABLE JUICES

*3<sup>rd</sup> Session  
Brazil, May 2003*

### PROPOSED DRAFT CODEX GENERAL STANDARD FOR FRUIT JUICES AND NECTARS

Governments and interested international organizations in Observer status with Codex wishing to submit comments on the attached *Proposed Draft Codex General Standard for Fruit Juices and Nectars (AT STEP 3)* are invited to do so **NO LATER THAN 31 MARCH 2003** to the Secretary, Codex Alimentarius Commission, Joint FAO/WHO Foods Standards Programme, Via delle Terme di Caracalla, 00100 Rome, Italy (Fax No. 39.06.5705.4593 or E-Mail [codex@fao.org](mailto:codex@fao.org) - *preferably* - ).

#### BACKGROUND

1. In discussing the Proposed Draft Codex General Standard for Fruit Juices and Nectars, the 2<sup>nd</sup> Session of the Ad Hoc Intergovernmental Codex Task Force on Fruit and Vegetable Juices (Rio de Janeiro, Brazil, 23-26 April 2002) decided to return the aforesaid document to Step 3 for circulation and further comments.<sup>1</sup>
2. In taking this decision, the Task Force agreed to reconvene the Drafting Group on the Revision of the Standard with a view to revising the aforesaid document particularly those controversial issues and undecided provisions of the proposed draft Standard based on the written comments submitted at the 2<sup>nd</sup> Session of the Task Force and in response to CL 2002/14-FJ. The Drafting Group was convened under the chairmanship of Brazil, with the assistance of Australia, Cuba, France, Germany, Mexico, Spain, Thailand, the Netherlands, the United States of America, the International Federation of Fruit Juice Producers (IFU) and other Member countries and interested international organizations in Observer status with Codex.<sup>2</sup>
3. The Task Force also decided to assign the responsibility for the revision and updating of the Brix values for both fruit and vegetable juices and minimum fruit juice and/or purée content for nectars to the Drafting Group on the Revision of the Standard with the understanding that a consolidated list would be presented for consideration by the Task Force at its next meeting (see also CL 2003/2-FJ).
4. The Task Force further agreed that the revised proposed draft Standard to be considered at its next Session would include a clear explanation and justification in regard to recommendations made by the Drafting Group.<sup>3</sup>
5. With regard to methods of analysis and sampling, the 2<sup>nd</sup> Session of the Task Force agreed to forward methods of analysis for fruit and vegetable juices and nectars to the Codex Committee on Methods of Analysis and Sampling for endorsement.<sup>4</sup>

<sup>1</sup> ALINORM 03/39 para. 43.

<sup>2</sup> ALINORM 03/39 paras. 44-45.

<sup>3</sup> ALINORM 03/39 para. 46.

<sup>4</sup> ALINORM 03/39 paras. 49-51.

6. In this respect, the 24<sup>th</sup> Session of CCMAS (Budapest, Hungary, 18-22 November 2002) confirmed that the methods proposed by Codex commodity and general committees for endorsement should correspond to provisions in Codex standards or standards in the elaboration procedure. The Committee agreed that in application of the procedure, the methods that did not correspond to a specific provision could not be considered for endorsement. In particular, the Committee did not consider the methods forwarded by the *Ad hoc* Intergovernmental Task Force on Fruit and Vegetable Juices and asked the Task Force to identify the methods corresponding only to specific provisions in the Proposed Draft Standards under elaboration.<sup>5</sup>

7. It is also noted that where there is a specification or labelling requirement in the Standard, it is necessary to recommend a method(s) for the provision. However, if there is no specification or labelling requirement, there is no need to select methods of analysis.

8. In view of this, the Task Force, when considering methods of analysis as listed in CX/FJ 03/3 Appendix I, should give due consideration to the *General Criteria for the Selection of Methods of Analysis* as set out in the *Principles for the Establishment of Codex Methods of Analysis*.<sup>6</sup> The Task Force is also invited to take into account the provisions contained in the Procedural Manual of the Codex Alimentarius Commission in particular the *Relations between Commodity Committees and General Committees (Methods of Analysis and Sampling)*.<sup>7</sup>

9. The revised proposed draft Codex General Standard for Fruit Juices and Nectars is appended to this document as Appendix I. The comments of the Drafting Group in relation to the revision of the proposed draft Standard are presented in Appendix II.

10. Governments and interested international organizations in Observer status with Codex in invited to comment on the ***proposed draft Codex General Standard for Fruit Juices and Nectars*** as directed above. In doing so, particular attention should be given to:

- (a) those controversial issues and undecided provisions of the Standard discussed at the last Session of the Task Force and the recommendations of the Drafting Group in this respect (see CX/JF 03/3 Appendices I and II);
- (b) the submission of data on Brix levels and the methodology to be used for their determination (see CX/FJ 03/3 Appendices I and II, CL 2003/2-FJ);
- (c) the identification of methods of analysis matching with the *General Criteria for the Selection of Methods of Analysis* as set out in the *Principles for the Establishment of Codex Methods of Analysis* and the recommendation of the Codex Committee on Methods of Analysis and Sampling that only methods of analysis for which there is a provision and/or labelling requirement in the Standard should be proposed for endorsement by CCMAS (see CX/FJ 03/3 Appendix I).

Comments and data submitted on points a), b) and c) will be considered by the 3<sup>d</sup> Session of the Ad Hoc Codex Intergovernmental Task Force on Fruit and Vegetable Juices to be met in May 2003.

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<sup>5</sup> ALINORM 03/23 para. 54.

<sup>6</sup> Procedural Manual of the Codex Alimentarius Commission, 12<sup>th</sup> Edition, pages 64-74.

<sup>7</sup> Procedural Manual of the Codex Alimentarius Commission, 12<sup>th</sup> Edition, pages 86-88.

**PROPOSED DRAFT CODEX GENERAL STANDARD  
FOR FRUIT JUICES AND NECTARS  
(At Step 3)**

**1. SCOPE**

This Standard applies to all products as defined in Section 2.1 below.

**2. DESCRIPTION****2.1 PRODUCT DEFINITION****2.1.1 Fruit Juice**

Fruit juice is the unfermented but fermentable liquid obtained from the edible part of sound, appropriately mature and fresh fruit or of fruit maintained in sound condition by suitable means including post harvest surface treatments applied in accordance with the applicable provisions of the Codex Alimentarius Commission.

Some juices may be processed with pips/seeds and peel, which are not usually incorporated in the juice, but some parts or components of pips, seeds and peel, which cannot be removed by Good Manufacturing Practices (GMP) will be acceptable.

The juice is prepared by suitable processes, which maintain the essential physical, chemical, organoleptical and nutritional characteristics of the fruit from which it comes. The juice may be cloudy or clear and may have restored<sup>1</sup> aromatic substances and volatile flavor components, all of which must be obtained by suitable physical means, and all of which must be recovered from the same kind of fruit. Pulp and cells obtained by suitable physical means from the same kind of fruit may be added.

A single juice is obtained from one kind of fruit. A mixed juice is obtained by blending two or more juices or juices and purées, from different kinds of fruits.

Fruit juice is obtained as follows:

**2.1.1.1 Fruit juice** directly expressed by mechanical extraction processes.

**2.1.1.2 Fruit juice from concentrate** by reconstituting concentrated fruit juice defined in Section 2.1.2 with potable water that meets the criteria described in Section 3.1.1(c).

**2.1.2 Concentrated Fruit Juice**

Concentrated fruit juice is the product that complies with the definition given in Section 2.1.1 above, except water has been physically removed in an amount sufficient to increase the Brix level to a value at least 50% greater than the Brix value established for reconstituted juice from the same fruit, as indicated in Section A.2 (Annex). In the production of juice that is to be concentrated, suitable processes are used and may be combined with simultaneous diffusion of the pulp cells or fruit pulp by water, provided that the water extracted juice is added in-line to the primary juice, before the concentration procedure. Fruit juice concentrates may have restored<sup>1</sup> components such as aromatic substances and volatile flavor components, all of which must be recovered from the same kinds of fruits and be obtained by physical means. Pulp and cells obtained by suitable physical means from the same kind of fruit may be added.

**2.1.3 Water Extracted Fruit Juice**

Water Extracted Fruit Juice is the product obtained by diffusion with water of:

- Pulpy whole fruit whose juice cannot be extracted by any physical means, or
- Dehydrated whole fruit.

Such products may be concentrated and reconstituted.

The solids content of the finished product shall meet the minimum Brix for reconstituted juice specified in Section A.2 (Annex).

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<sup>1</sup> Introduction of aromas and flavors are allowed to restore the level of these components up to the normal level attained in the same kind of fruit.

#### 2.1.4 Fruit Purée

Fruit purée is the unfermented but fermentable product obtained by suitable processes e.g. by sieving, grinding, milling the edible part of the whole or peeled fruit without removing the juice. Fruit purée may have restored<sup>1</sup> components such as aromatic substances and volatile flavour components, all of which must be recovered from the same kinds of fruits and be obtained by physical means. Pulp and cells obtained by suitable physical means from the same kind of fruit may be added. The fruit must be sound, appropriately mature, and fresh or preserved by physical means or by treatment(s) applied in accordance with the applicable provisions of the Codex Alimentarius Commission.

#### 2.1.5 Concentrated Fruit Purée

Concentrated fruit purée is obtained by the physical removal of water from the fruit purée in an amount sufficient to increase the Brix level to a value at least 50% greater than the Brix value established for reconstituted juice from the same fruit, as indicated in Section A.2 (Annex). Concentrated fruit purée may have restored components such as aromatic substances and volatile flavor components, all of which must be recovered from the same kinds of fruits and be obtained by physical means.

#### 2.1.6 Fruit Nectar

Fruit Nectar is the unfermented but fermentable product obtained by adding water with or without the addition of sugars as defined in the Codex Standard for Sugars (CX-STAN 212-1999, Amd. 1-2001), other carbohydrate sweeteners, honey and/or other sweeteners as described in Section 3.1.2, and/or high intensity sweeteners as listed in Section 4.7 to products defined in Sections 2.1.1, 2.1.2, 2.1.3, 2.1.4 and 2.1.5 or to a mixture of those products. Aromatic substances, volatile flavor components, pulp and cells all of which must be recovered from the same kind of fruit and be obtained by physical means may be added. That product moreover must meet the requirements defined for fruit nectars in Section A.2 (Annex). Mixed fruit nectar is obtained by blending two or more fruit nectars, concentrated or unconcentrated, from different kinds of fruits.

### 2.2 SPECIES

The species indicated as the botanical name in Section A.2 (Annex) shall be used in the preparation of fruit juices and fruit nectars bearing the product name for the applicable fruit. For fruits not included in Section A.2 (Annex), the correct botanical or common name shall apply.

## 3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

### 3.1 COMPOSITION

#### 3.1.1 Basic Ingredients

(a) For directly expressed fruit juices, the soluble solids content of the single strength juice must be in accordance with the minimum Brix level established in Section A.1 (Annex) and shall not be modified, except by blendings of the same kind of juice. For juices, which do not appear in Section A.1 (Annex), the minimum Brix shall be the Brix as expressed from the fruit.

(b) The preparation of fruit juice that requires reconstitution of concentrated juices must be in accordance with the minimum Brix level established in Section A.2 (Annex), exclusive of the solids of any added optional ingredients and additives. If there is no Brix level specified in the Table, minimum Brix shall be calculated on the basis of the soluble solids content of the single strength juice used to produce such concentrated juice.

(c) For reconstituted juice and nectar, the potable water used in reconstitution shall, at a minimum, meet the latest edition of the *Guidelines for Drinking Water Quality of the World Health Organization* (Volumes 1 and 2).

#### 3.1.2 Other Permitted Ingredients

Except as otherwise provided, the following shall be subject to ingredient labeling requirements:

(a) Sugars with less than 2% moisture as defined in the Codex Standard for Sugars (CX-STAN 212- 1999, Amd. 1-2001): sucrose<sup>2</sup>, dextrose anhydrous, glucose<sup>3</sup>, fructose, may be added to all products defined in Section 2.1. (The addition of ingredients listed in Section 3.1.2(a) and 3.1.2(b) applies only to products intended for sale to the consumer or for catering purposes.)

<sup>2</sup> “termed “white sugar” and “mill sugar” in CX-STAN 212 – 1999 (Amd.1 – 2001)

<sup>3</sup> “termed dextrose anhydrous in CX-STAN 212 – 1999 (Amd.1 – 2001)

(b) Syrups (as defined by Codex Standard for Sugars CX-STAN 212-1999, Amd. 1-2001): glucose syrup, liquid sucrose, invert sugar solution, invert sugar syrup, fructose syrup, liquid cane sugar, isoglucose, high fructose syrup may be added only to fruit nectars as defined in Section 2.1.6, concentrated fruit juices, as defined in Section 2.1.2, and fruit juice from concentrate, as defined in Section 2.1.1.2 and concentrated fruit purée as defined in Section 2.1.5. Honey and/or sugars derived from fruits may be added only to fruit nectars as defined in Section 2.1.6.

(c) Subject to further national labeling requirements, lemon (*Citrus limon* (L.) Burm. f. *Citrus limonum* Rissa) juice or lime (*Citrus aurantifolia* (Christm.)) juice, or both, may be added to fruit juice: up to 3 g/l anhydrous citric acid equivalent for acidification purposes to unsweetened juices as defined in Sections 2.1.1, 2.1.2, 2.1.3, 2.1.4 and 2.1.5. Lemon juice or lime juice, or both, may be added: up to 5 g/l anhydrous citric acid equivalent to fruit nectars as defined in Section 2.1.6.

(d) The addition of both sugars and acidifying agents (defined in subparagraph (b) and Section 4 respectively) to the same fruit juice is prohibited.

(e) Subject to further national labeling requirements, the juice from *Citrus reticulata* and/or hybrids with *reticulata* may be added to orange juice in an amount not to exceed 10% of soluble solids of the *reticulata* to the total of soluble solids of orange juice.

(f) Salt and spices and aromatic herbs (and their natural extracts) may be added to tomato juice.

(g) The addition of essential nutrients (e.g. vitamins, minerals) shall comply with the texts of the Codex Alimentarius Commission established for this purpose.

### 3.2 QUALITY CRITERIA

The fruit juices and fruit nectars shall have the characteristic color, aroma and flavor of juice from the same kind of fruit from which it is made. Natural fruit juice components such as flavors, pulps and cells may be added or restored to juice or nectar of the same kind of fruit.

The fruit shall retain no more water from washing, steaming or other preparatory operations than technologically unavoidable.

## 4. FOOD ADDITIVES

### 4.1 ACIDITY REGULATORS

INS No.	Food Additive	Maximum Level
330	Citric acid	3 g/l <sup>4</sup>
330	Citric acid	5 g/l (for nectars)
296	Malic acid	GMP (only for pineapple juice, and fruit nectars)
334	Tartaric acid	4g/l (only for nectars and grape juice)

### 4.2 ANTIOXIDANTS

INS No.	Food Additive	Maximum Level
300-303	Ascorbic acid and its salts	GMP
220 – 225, 227, 228, 539	Sulphites	50 mg/l as residual SO <sub>2</sub>

### 4.3 CARBONATING AGENTS

INS No.	Food Additive	Maximum Level
290	Carbon dioxide	GMP

### 4.4 PRESERVATIVES

INS No.	Food Additive	Maximum Level
210-213	Benzoic Acid and its salts	1g/l, single or in combination <sup>4</sup>
200-203	Sorbic Acid and its salts	

<sup>4</sup> Subject to national legislation of the importing country.

**4.5 SEQUESTRANTS**

INS No.	Food Additive	Maximum Level
451 I	Sodium tripolyphosphate	1 g/l (only to enhance effectiveness of benzoates and sorbates)

**4.6 STABILIZERS**

INS No.	Food Additive	Maximum Level
440	Pectins	3 g/l(only for cloudy juices and fruit nectars)

**4.7 SWEETENERS**

INS No.	Food Additive	Maximum Level
950	Acesulfame potassium	350 mg/l (only for fruit nectars)
951	Aspartame	600 mg/l (only for fruit nectars)
952	Cyclamic acid and its salts	400 mg/l (only for fruit nectars)
954	Saccharin and its salts	80 mg/l (only for fruit nectars)
955	Sucralose	300 mg/l (only for fruit nectars)

**4.8 PROCESSING AIDS**

Function	Substance	Maximum Level
Antifoaming Agent	Polydimethylsiloxane	10 mg/L
Clarifying Agents Filtration Aids Flocculating Agents	Absorbent clays (bleaching, natural or activated earths)	
	Absorbent resins	
	Active carbon (only for plants)	
	Bentonite	
	Calcium hydroxide	GMP (only in grape juice)
	Cellulose	
	Chitosan	
	Colloidal silica	
	Diatomaceous earth	
	[Gelatin]	
	Ion exchange resins (cation and anion)	
	Isinglass	
	Kaolin	
	Perlite	
	Polyvinylpyrrolidone	
	Potassium tartrate	GMP (only in grape juice)
Precipitated calcium carbonate	GMP (only in grape juice)	
Rice hulls		
Silicasol		
Sulphur dioxide	10 mg/l (only in grape juice)	
Tannin		
Enzyme preparations	Pectinases (for breakdown of pectin), [proteinases (for breakdown of proteins)], amylases (for breakdown of starch) and [cellulases (limited use to facilitate disruption of cell walls)].	Enzyme preparations may be used as processing aids provided these preparations do not result in a total liquefaction and do not substantially affect the cellulose content of the processed fruit.
Packing gas <sup>5</sup>	Nitrogen	GMP
	Carbon dioxide	GMP

<sup>5</sup> May also be used e.g., for preservation.

## 5. CONTAMINANTS

The products covered by the provisions of this Standard shall comply with those maximum levels established by the Codex Alimentarius Commission.

### 5.1 HEAVY METALS

The products covered by the provisions of this Standard shall comply with those maximum levels for heavy metals established by the Codex Alimentarius Commission for these products.

### 5.2 PESTICIDE RESIDUES

The products covered by the provisions of this Standard shall comply with those maximum residue limits established by the Codex Alimentarius Commission for these products.

## 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 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.

**6.2** 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).

## 7. LABELLING

In addition to the Codex General Standard for the Labeling of Prepackaged Foods (CODEX STAN 1-1985, Rev. 1-1991), the following specific provisions apply: <sup>4</sup>

### 7.1 CONTAINERS DESTINED FOR THE FINAL CONSUMER

#### 7.1.1 The Name of the Product

The name of the product shall be the name of the fruit used as defined in Section 2.2. The fruit name shall be filled in the blank of the product name mentioned under this Section. These names may only be used if the product conforms to the definition in Section 2.1 or which otherwise conform to this Standard.

##### 7.1.1.1 Fruit Juice defined under Section 2.1.1

The name of the product shall be “\_\_\_\_\_ juice” or “juice of \_\_\_\_\_”.

##### 7.1.1.2 Water extracted fruit juice defined under Section 2.1.3

The name of the product shall be “water extracted\_\_\_\_\_ juice” or “water extracted juice of \_\_\_\_\_”.

##### 7.1.1.3 Concentrated Fruit Juice defined under Section 2.1.2

The name of the product shall be “concentrated \_\_\_\_\_ juice” or “\_\_\_\_\_ juice concentrate”.

##### 7.1.1.4 Fruit Nectars defined under Section 2.1.6

The name of the product shall be “\_\_\_\_\_ nectar” or “nectar of \_\_\_\_\_”.

##### 7.1.1.5 Fruit purée defined under Section 2.1.4

The name of the product shall be “\_\_\_\_\_ purée” or “Purée of \_\_\_\_\_”

##### 7.1.1.6 Concentrated fruit purée defined under Section 2.1.5

The name of the product shall be “concentrated \_\_\_\_\_ purée” or “\_\_\_\_\_ purée concentrated”

#### 7.1.2 Additional Requirements

The following additional specific provisions shall apply:

**7.1.2.1** For fruit juices, fruit nectars and mixed fruit juice/nectar, if the product contains or is prepared from concentrated juice and water or the product is prepared from juice from concentrate and directly expressed juice or nectar, the words “from concentrate” or “reconstituted” must be entered in conjunction with or close to the product name, standing out well from any background, in clearly visible characters, not less than 1/2 the height of the letters in the name of the juice.

**7.1.2.2** For fruit juices, fruit nectars, fruit purée and mixed fruit juices/nectars/purées, if the product is prepared by physically removing water from the fruit juice in an amount sufficient to increase the Brix level to a value at least 50% greater than the Brix value established for reconstituted juice from the same fruit, as indicated in table of Section A.2 (Annex), it shall be labeled "concentrated".

**7.1.2.3** For products defined in Section 2.1, where one or more of the optional sugars ingredients as described in Section 3.1.2 (a) and (b) or permitted sweeteners are added, the juice name shall include the statement called "sugar(s) added" or "sweetened" after the fruit juice, fruit nectar or mixed fruit juice/nectar's name. When high intensity sweeteners are employed as substitutes for sugars in fruit nectars and mixed fruit nectars, the statement, "with high intensity sweetener(s)," shall be included in conjunction with or in close proximity to the product name.<sup>6</sup>

**7.1.2.4** Where concentrated fruit juice, concentrated fruit purée, concentrated fruit nectar or mixed concentrated fruit juice/nectar/purée is to be reconstituted before consumption as fruit juice, fruit purée, fruit nectar or mixed fruit juice/nectar/purée, the label must bear appropriate directions for reconstitution on a volume/volume basis with water to the applicable Brix value in Section A.2 (Annex) for reconstituted juice.

**7.1.2.5** Distinct varietal denominations may be used in conjunction with the common fruit names on the label where such use is not misleading.

**7.1.2.6** Fruit juice, fruit nectar, and mixed fruit juice/nectar's that have been preserved using physical processes should include a description of such processes as part of the fruit juice, fruit nectar or mixed fruit juice/nectar's name (i.e. "pasteurized," "frozen," etc.).

**7.1.2.7** Fruit nectars and mixed fruit nectars must be conspicuously labeled with a declaration of "juice content \_\_\_%" with the blank being filled with the percentage of purée and/or fruit juice computed on a volume/volume basis. The words "juice content \_\_\_%" shall appear in close proximity to the name of the product in clearly visible characters, not less than 1/2 the height of the letters in the name of the juice.

**7.1.2.8** An ingredient declaration of "ascorbic acid" when used as an antioxidant does not, by itself, constitute a "Vitamin C" claim.

**7.1.2.9** Any added essential nutrients declaration should be labeled in accordance with the *Codex Guidelines on Nutrition Labeling* (CAC/GL 2- 1985 (Rev. 1-1993) and the *Codex Guidelines for the Use of Nutrition Claims* (CAC/GL 23-1997).

**7.1.2.10** Where the fruit juice has been prepared from raw material treated with ionizing radiation, it shall be labeled in accordance with Section 5.2.2 of the Codex General Standard for the Labeling of Prepackaged Foods (CODEX STAN 1-1985, Rev. 1-1991).

**7.1.2.11** No fruit may be represented pictorially on the label, except those present in the fruit product.

**7.1.2.12** Where the product contains added carbon dioxide the term "carbonated" shall appear on the label near the name of the food.

**7.1.2.13** Where tomato contains spices in accordance with 3.1.2(f), the term "spiced" shall appear on the label near the name of the food

**7.1.2.14** Pulp and cells added to juice over that normally contained in the juice shall be declared in the list of ingredients. Aromatic substances, volatiles flavor components, pulp and cells added to nectar over that normally contained in the juice shall be declared in the list of ingredients.

## **7.2 NON-RETAIL CONTAINERS**

Information for non-retail containers not destined to final consumers shall be given either on the container or in accompanying documents, except that the name of the product, lot identification, net contents and the name and address of the manufacturer, packer or distributor and? or importer, as well as storage instructions, shall appear on the container, except that for tankers the information may appear exclusively in the accompanying documents.

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<sup>6</sup> Additional language to be added regarding specific Codex text and/or other language to provide for light, low calorie, reduced calories etc. nectars

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.

## **8. METHODS OF ANALYSIS AND SAMPLING**

## METHODS OF ANALYSIS FOR FRUIT JUICES

Commodity	Provision	Method	Principle	Notes	Codex Type
Juices	acetic acid	EN 12632; IFU Method No66 (1996)	enzymatic determination	Quality method	II
Juices	Alcohol (ethanol)	IFU Method No52,1983/1996	enzymatic determination	Quality method	II
Juices	anthocyanins	IFU Method No71 (1998)	high performance liquid chromatography	Authenticity method	I
Juices	ascorbic acid-L	IFU Method No17a (1995)	high performance liquid chromatography	Quality method	II
Juices	ascorbic-L	AOAC 967.21; IFU Method No 17	titration	Quality method	III
Juices	ash in fruit products	AOAC 940.26 - JAOAC 23,314(1940); EN1135(1994); IFU Method No9(1989)	gravimetry	Authenticity method	I
Juices	beet sugar in fruit juices	AOAC 995.17 - JAOAC 79, 917(1996)	deuterium NMR	Authenticity method	I
Orange juice	benzoic acid as a marker in orange juice	AOAC 994.11 - JAOAC 78, 80(1995)	high performance liquid chromatography	Authenticity method	II
Juices	C13/C12 ratio of ethanol derived from fruit juices	collaborative study submitted to AOAC	stable isotope mass spectrometry	Authenticity method	III
Apple juice	carbon stable isotope ratio of apple juice	AOAC 981.09 - JAOAC 64, 85(1981)	stable isotope mass spectrometry	Authenticity method	II
Orange juice	carbon stable isotope ratio of orange juice	AOAC 982.21 - JAOAC 65, 608(1982) J.Agric.Food Chem, 29, 803-804, 1981	stable isotope mass spectrometry	Authenticity method	II
Juices	carotenoid, total/ individual groups	EN 12136 (1997); IFU Method No59,1991	precipitation/ fractionation	Authenticity method	I
Juices	centrifugable pulp	EN12134; IFU Method No60,1991/1998	centrifugation/% value	Quality method	I
Juices	chloride (expressed as sodium chloride)	EN12133; IFU Method No 37, 1968	potentiometry	Quality method	II
Juices	chloride	AOAC 971.27 (Codex general method)	potentiometry	Quality method	III

Commodity	Provision	Method	Principle	Notes	Codex Type
Juices	citric acid	AOAC 986.13 - JAOAC 69, 594 (1986) - JAOAC 77, 411 (1994)	high performance liquid chromatography	Authenticity method	III
Juices	citric acid	EN 1137; IFU Method No22,1985	enzymatic determination	Authenticity method	II
Juices	essential oils	AOAC 968.20; IFU 45b	(Scott) distillation, titration	Quality method	I
Juices	fermentability	IFU Method No 18, 1974	microbiology	Quality method	I
Juices	Formol number	EN 1133 (1994); IFU Method No30(1984)	potentiometry	Authenticity method	I
Juices	free amino acids	EN 12742; IFU Method No57,1989	column chromatography/ spectrophotometry	Authenticity method	II
Juices	fumaric acid	IFU Method No72 (1998)	high performance liquid chromatography	Quality method	II
Juices	glucose, fructose, sorbitol	EN 12630; IFU Method No67 (1996)	high performance liquid chromatography	Authenticity method	III
Juices	Glucose-D fructose-D	EN 1140; IFU Method No55,1985	enzymatic determination	Authenticity method	II
Juices	gluconic acid	IFU Method No 76 (2001)	enzymatic determination	Quality method	II
Juices	glycerol	IFU Method No77 (2001)	enzymatic determination	Quality method	II
Juices	hesperidin and naringin	EN12148(1996); IFU Method No 58 (1991)	high performance liquid chromatography	Authenticity method	II
Apple juice	high fructose corn syrup and hydrolyzed inulin syrup in apple juice	AOAC collaborative study in progress	capillary gas chromatography	Authenticity method	I
Juices	hydroxymethylfurfural	IFU Method No69 (1996)	high performance liquid chromatography	Authenticity method	II
Juices	isocitric acid-D	EN 1139; IFU Method No54,1984	enzymatic determination	Authenticity method	II
Juices	lactic acid-D and L	EN 12631 (1999); IFU Method No53 (1983/1996)	enzymatic determination	Quality method	II

Commodity	Provision	Method	Principle	Notes	Codex Type
Juices	limonin in citrus juices and concentrates	AOAC collab in progress	high performance liquid chromatography	Authenticity method	III
Apple juice	malic acid (L-malic/total malic acid ratio in apple juice)	AOAC 993.05 - JAOAC 69, 594 (1986) - JAOAC 77, 411 (1994)	enzymatic determination and high performance liquid chromatography	Authenticity method	I
Juices	malic acid-D	EN12138; IFU Method No 64 (1995)	enzymatic determination	Authenticity method	II
Apple juice	malic acid-D in apple juice	AOAC 995.06	high performance liquid chromatography	Authenticity method	III
Juices	Malic acid-L	EN1138 (1994); IFU Method No21(1985)	enzymatic detrermination	Authenticity method	II
Orange juice	naringin and neohesperidin in orange juice	AOAC 999.05 - JAOAC, Vol. 83, No.5 2000, pp1155-1165	high performance liquid chromatography	Authenticity method	I
Juices	Pectin	IFU Method No26,1964/1996	precipitation/ photometry	Authenticity method	I
Juices	pH-value	EN 1132(1994); IFU Method No11 (1968/1989)	potentiometry	Quality method	I
Juices	phosphorus/phosphate	EN1136 (1994); IFU Method No50(1983)	photometry	Authenticity method	II
Juices	polyphenolics	collaborative study in progress	high performance liquid chromatography	Authenticity method	IV
Juices	preservatives in fruit juices	IFU Method No 63 (1995)	high performance liquid chromatography	Authenticity method	II
Juices	Proline	EN1141 (1994); IFU Method No49 (1983)	photometry	Authenticity method	II
Apple and cranberry juice	quinic, malic & citric in cranberry juice cocktail and apple juice	AOAC 986.13 - JAOAC 69, 594(1986)	high performance liquid chromatography	Authenticity method	III
Juices	recoverable oil	AOAC 968.20; IFU Method No 45b	distillation and titration Scott method	Quality method	I

Commodity	Provision	Method	Principle	Notes	Codex Type
Juices	Relative density	EN1131(1993); IFU Method No 1 (1989) & IFU Method No General sheet,1971	pycnometry	Quality method	I
Juices	Relative density	IFU Method No 1A	densitometry	Quality method	I
Juices	sodium, potassium,calcium, magnesium	EN 1134 (1994); IFU Method No33 (1984)	atomic absorption spectroscopy	Authenticity method	II
Juices	Soluble solids	AOAC 983.17; EN12143 (1996); IFU Method No 8 (1991)	indirect by refractometry	Quality method	I
Juices	Sorbitol-D	IFU Method No62,1995	enzymatic determination	Authenticity method	II
Juices	stable carbon isotope ratio in the pulp of fruit juices	ENV13070 (1998); Analytica Chimica Acta 340 (1997)	stable isotope mass spectrometry	Authenticity method	II
Juices	stable carbon isotope ratio of sugars from fruit juices	ENV12140 Analytica Chimica Acta.271 (1993)	stable isotope mass spectrometry	Authenticity method	II
Juices	stable hydrogen isotope ratio of water from fruit juices	ENV12142 (1997)	stable isotope mass spectrometry	Authenticity method	II
Juices	stable oxygen isotope ratio in fruit juice water	ENV12141(1997)	stable isotope mass spectrometry	Authenticity method	II
Juices	Starch	AOAC 925.38; IFU Method No73	enzymatic determination	Quality method	I
Juices	Sucrose	EN 12146(1996); IFU Method No56 1985/1998	enzymatic determination	Authenticity method	III
Juices	sucrose	EN 12630; IFU Method No67(1996)	high performance liquid chromatography	Authenticity method	II

Commodity	Provision	Method	Principle	Notes	Codex Type
Orange juice	sugar -beet derived syrups in frozen concentrated orange juice d18O measurements in water	AOAC 992.09	oxygen isotope ratio analysis	Authenticity method	I
Juices	sulfates	EN1142 (1994); IFU Method No36(1987)	precipitation / gravimetry	Quality method	II
Grape juice	tartaric acid in grape juice	EN 12137(1997); IFU Method No65 (1995)	high performance liquid chromatography	Authenticity method	I
Juices	titratable acids, total	EN 12147 (1995); IFU Method No 3, 1968, AOAC 942.15 B	titrimetry	Quality method	I
Juices	titratable acids, total	AOAC 942.15 A	titration		I
Juices	total dry matter	EN12145(1996); IFU Method No61,1991	gravimetry	Quality method	I
Juices	total nitrogen	EN 12135 (1997); IFU Method No28, 1991	digestion/ titration	Quality method	I
Juices	total solids	AOAC 985.26	gravimetry	Quality method	I
Juices	vitamin C	AOAC 967.22	microfluorometry	Quality method	III
Juices	vitamin C	CEN [insert correct reference]	high performance liquid chromatography	Quality method	II

**A.1 MINIMUM BRIX LEVEL FOR DIRECTLY EXPRESSED JUICE**

<b>Fruit's Common Name</b>	<b>Botanical Name</b>	<b>Minimum Brix Level For Directly Expressed Fruit Juices<sup>7</sup></b>
Apple	<i>Malus Domestica Borkh</i>	10.5 <sup>8</sup>
Banana	<i>Musa species</i> (plantains excluded)	(*) <sup>9</sup>
Grape	<i>Vitis Vinifera</i> L. or hybrids thereof <i>Vitis Labrusca</i> or hybrids thereof	14.0 <sup>8</sup>
Grapefruit	<i>Citrus grandis Citrus x paradisi</i> Macfad	9.0 <sup>8</sup>
Mango	<i>Mangifera indica</i> L.	12.5 <sup>8</sup>
Orange	<i>Citrus sinensis</i> (L.) Osbeck	(*) <sup>9</sup>
Pineapple	<i>Ananas comosus</i> (L.) Merrill <i>Ananas sativis</i> L. Schult. f.	11.0 <sup>8</sup>

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<sup>7</sup> At 20°C, acid corrected.

<sup>8</sup> Agreed by the Drafting Group.

<sup>9</sup> Discussed by the Drafting Group, but not agreed. An appropriate statistical methodology will be applied to reach a number to be proposed for the May, 2003 meeting.

**A.2 Minimum Brix level for reconstituted juice and minimum juice and/or purée content for fruit nectar (% v/v).**

<b>Fruit's Common Name</b>	<b>Botanical Name</b>	<b>Minimum Brix Level Reconstituted Fruit Juices<sup>7</sup></b>	<b>Minimum juice and/or purée content (% v/v) for Fruit Nectars</b>
Acerola (West Indian Cherry)	<i>Malpighia spp</i> (Moc. & Sesse) ex	6.5 <sup>8</sup>	25.0 <sup>8</sup>
Apple	<i>Malus Domestica</i> Borkh	11.5 <sup>8</sup>	50.0 <sup>8</sup>
Apricot	<i>Prunus armeniaca L</i>	11.5 <sup>8</sup>	40.0 <sup>8</sup>
Aronia/Chokeberry	<i>Pyrus arbustifolia</i> (L.) Pers.	(*) <sup>10</sup>	(*) <sup>10</sup>
Banana	<i>Musa species</i> (plantains excluded)	(*) <sup>9</sup>	25.0 <sup>8</sup>
Bilberry/Blueberry	<i>Vaccinium myrtillus L. Vaccinium corymbosum L. Vaccinium angustifolium</i>	10.0 <sup>8</sup>	40.0 <sup>8</sup>
Blackberry	<i>Rubus Fruitcosus L.</i> (group name)	9.0 <sup>8</sup>	30.0 <sup>8</sup>
Blackcurrant	<i>Ribes nigrum L.</i>	11.0 <sup>8</sup>	30.0 <sup>8</sup>
Boysenberry	<i>Rubus ursinus</i> cham. & Schltld.	10.0 <sup>8</sup>	(*) <sup>10</sup>
Buckthornberry = Sallowthornberry	<i>Hippophae rhamnoides L.</i>	6.0 <sup>8</sup>	(*) <sup>10</sup>
Cocoa pulp	<i>Theobroma cacao L.</i>	14.0 <sup>8</sup>	50.0 <sup>8</sup>
Cajá	<i>Spondia lutea L.</i>	10.0 <sup>8</sup>	25.0 <sup>8</sup>
Canneberge		(*) <sup>10</sup>	30.0 <sup>8</sup>
Casaba Melon	<i>Cucumis melo L</i> subsp. <i>melo</i> var. <i>inodorus</i> H. Jacq	7.5 <sup>8</sup>	(*) <sup>10</sup>
Cashewapple	<i>Anacardium occidentale L.</i>	11.5 <sup>8</sup>	25.0 <sup>8</sup>
Cloudberry	<i>Rubus chamaemorus L.</i>	9.0 <sup>8</sup>	30.0 <sup>8</sup>
Coconut	<i>Cocos nucifera L.</i>	5.0 <sup>8</sup>	(*) <sup>10</sup>
Crabapple	<i>Malus prunifolia</i> (Willd.) Borkh <i>Malus sylvestris</i> Mill	15.4 <sup>8</sup>	(*) <sup>10</sup>
Cranberry	<i>Vaccinium macrocarpon</i> Aiton <i>Vaccinium oxycoccos L.</i>	7.5 <sup>8</sup>	30.0 <sup>8</sup>
Crowberry	<i>Empetrum nigrum L.</i>	6.0 <sup>8</sup>	(*) <sup>10</sup>
Cupuaçu	<i>Theobroma grandiflorum L</i>	9.0 <sup>8</sup>	35.0 <sup>8</sup>
Curdles		(*) <sup>10</sup>	50.0 <sup>8</sup>
Cynorrhodon		(*) <sup>10</sup>	40.0 <sup>8</sup>
Date	<i>Phoenix dactylifera L.</i>	18.5 <sup>8</sup>	(*) <sup>10</sup>
Dewberry	<i>Rubus hispidus</i> (of North America) <i>R. caesius</i> (of Europe)	10.0 <sup>8</sup>	(*) <sup>10</sup>

<sup>10</sup> No data currently available. If a juice is manufactured from a fruit not mentioned in the above list, it must, nevertheless, comply with all the provisions of the Standard, except that the minimum Brix level of the reconstituted juice shall be the Brix level as expressed from the fruit used to make the concentrate.

<b>Fruit's Common Name</b>	<b>Botanical Name</b>	<b>Minimum BrixLevel Reconstituted Fruit Juices<sup>7</sup></b>	<b>Minimum juice and/or purée content (% v/v) for Fruit Nectars</b>
Elderberry	<i>Sambucus nigra L</i> <i>Sambucus canadensis.</i>	10.5 <sup>8</sup>	50.0 <sup>8</sup>
Fig	<i>Ficus carica L.</i>	18.0 <sup>8</sup>	(*) <sup>10</sup>
Genipap	<i>Genipa american</i>	17.0 <sup>8</sup>	(*) <sup>10</sup>
Goosberry	<i>Ribes uva-crispa L.</i>	7.5 <sup>8</sup>	30.0 <sup>8</sup>
Granadilla	<i>Passiflora quadrangularis</i>	(*) <sup>10</sup>	(*) <sup>10</sup>
Grape	<i>Vitis Vinifera L. or hybrids thereof</i> <i>Vitis Labrusca or hybrids thereof</i>	(*) <sup>9</sup>	(*) <sup>10</sup>
Grapefruit	<i>Citrus grandis</i> <i>Citrus x paradisi Macfad</i>	10.0 <sup>8</sup>	50.0 <sup>8</sup>
Guava	<i>Psidium guajava L.</i>	(*) <sup>9</sup>	25.0 <sup>8</sup>
Guavaberry/Birchberry	<i>Eugenia syringa</i>	(*) <sup>10</sup>	(*) <sup>10</sup>
Honeydew Melon	<i>Cucumis melo L. subso. melo var inodorus H. Jacq</i>	10.0 <sup>8</sup>	(*) <sup>10</sup>
Kiwi	<i>Actinidia deliciosa (A. Chev.) C. F. Liang &amp; A. R. Ferguson</i>	(*) <sup>9</sup>	(*) <sup>10</sup>
Kumquat	<i>Fortunella Swingle spp</i>	(*) <sup>10</sup>	(*) <sup>10</sup>
Lemon	<i>Citrus limon (L.) Burm. f.</i> <i>Citrus limonum Rissa</i>	(*) <sup>9</sup>	(*) <sup>10</sup>
Lime	<i>Citrus aurantifolia (Christm.)</i>	(*) <sup>9</sup>	(*) <sup>10</sup>
Lingonberry	<i>Vaccinium vitis-idaea L.</i>	10.0 <sup>8</sup>	(*) <sup>10</sup>
Litchi	<i>Litchi chinensis Sonn</i>	11.2 <sup>8</sup>	20.0 <sup>8</sup>
Loganberry	<i>Rubus . loganobaccus L. H. Bailey</i>	10.5 <sup>8</sup>	(*) <sup>10</sup>
Lulo	<i>Solanum quitoense Lam.</i>	(*) <sup>10</sup>	(*) <sup>10</sup>
Mammee Apple	<i>Mammea americana</i>	(*) <sup>10</sup>	(*) <sup>10</sup>
Mandarine/Tangerine	<i>Citrus reticulata Blanca</i>	(*) <sup>9</sup>	50.0 <sup>8</sup>
Mango	<i>Mangifera indica L</i>	(*) <sup>9</sup>	25.0 <sup>8</sup>
Melon	<i>Cucumis melo L.</i>	8.0 <sup>8</sup>	35.0 <sup>8</sup>
Mulberry	<i>Morus spp.</i>	(*) <sup>10</sup>	30.0 <sup>8</sup>
Mulberry of Ronces		(*) <sup>10</sup>	40.0 <sup>8</sup>
Nectarine	<i>Prunus pérsica (L.) Batsch var. nucipersica (Suckow) c. K. Schneid.</i>	10.5 <sup>8</sup>	(*) <sup>10</sup>
Nispero/Loquat	<i>Eriobotrya japonesa</i>	(*) <sup>10</sup>	(*) <sup>10</sup>
Orange	<i>Citrus sinensis (L.)</i>	(*) <sup>9</sup>	50.0 <sup>8</sup>
Papaya	<i>Carica papaya L.</i>	(*) <sup>9</sup>	25.0 <sup>8</sup>
Passionfruit	<i>Pasiflora edulis Sims. f. edulus</i> <i>Passiflora edulis Sims. f. Flavicarpa O. Def.</i>	(*) <sup>9</sup>	(*) <sup>9</sup>

<b>Fruit's Common Name</b>	<b>Botanical Name</b>	<b>Minimum BrixLevel Reconstituted Fruit Juices<sup>7</sup></b>	<b>Minimum juice and/or purée content (% v/v) for Fruit Nectars</b>
Peach	<i>Prunus persica (L.) Batsch var. Persica</i>	10.5 <sup>8</sup>	40.0 <sup>8</sup>
Pear	<i>Pyrus communis L.</i>	12.0 <sup>8</sup>	40.0 <sup>8</sup>
Persimmon	<i>Diospyros khaki Thunb.</i>	(*) <sup>10</sup>	40.0 <sup>8</sup>
Pineapple	<i>Ananas comosus (L.) Merrill</i> <i>Ananas sativis L. Schult. f.</i>	(*) <sup>9</sup>	40.0 <sup>8</sup>
Plum	<i>Prunus domestica L. subsp. Domestica</i>	12.0 <sup>8</sup>	50.0 <sup>8</sup>
Pome Apple	<i>Syzygium jambosa</i>	(*) <sup>10</sup>	(*) <sup>10</sup>
Pomegranate	<i>Punica granatum L.</i>	12.0 <sup>8</sup>	(*) <sup>10</sup>
Prune	<i>Prunus domestica L. subsp. domestica</i>	18.5 <sup>8</sup>	(*) <sup>10</sup>
Purple Granadilla	<i>Passiflora edulis</i>	(*) <sup>10</sup>	(*) <sup>10</sup>
Quetsche	<i>Prunus domestica L. subsp. Domestica</i>	12.0 <sup>8</sup>	(*) <sup>10</sup>
Quince	<i>Cydonia oblonga Mill</i>	11.2 <sup>8</sup>	(*) <sup>10</sup>
Raspberry (Black)	<i>Rubus occidentalis L</i>	11.1 <sup>8</sup>	(*) <sup>10</sup>
Raspberry (Red)	<i>Rubus idaeus L.</i> <i>Rubus strigosus Michx.</i>	8.0 <sup>8</sup>	40.0 <sup>8</sup>
Red Currant	<i>Ribes rubrum L</i>	10.0 <sup>8</sup>	30.0 <sup>8</sup>
Red Goosberry		(*) <sup>10</sup>	30.0 <sup>8</sup>
Rosehip	<i>Rosa spp.</i>	9.0 <sup>8</sup>	40.0 <sup>8</sup>
Rowanberry	<i>Sorbus aucuparia L.</i>	11.0 <sup>8</sup>	30.0 <sup>8</sup>
Sallowthornberry/ Buckthornberry	<i>Hippophae rhamnoides L.</i>	6.0 <sup>8</sup>	(*) <sup>10</sup>
Sapote	<i>Pouteria sapota</i>	(*) <sup>10</sup>	(*) <sup>10</sup>
Sea Buckthorn	<i>Hippophae elaeagnaceae</i>	(*) <sup>10</sup>	25.0 <sup>8</sup>
Sloe	<i>Prunus spinosa L</i>	6.0 <sup>8</sup>	(*) <sup>10</sup>
Sorb		(*) <sup>10</sup>	30.0 <sup>8</sup>
Cherry, Sour	<i>Prunus cerasus L.</i>	14.0 <sup>8</sup>	(*) <sup>10</sup>
Sour Orange (Sauf citron)		(*) <sup>10</sup>	50.0 <sup>8</sup>
Soursop/Guanabana	<i>Annona muricata L.</i>	14.5 <sup>8</sup>	(*) <sup>10</sup>
Star Apple	<i>Chrysophyllum cainito</i>	(*) <sup>10</sup>	(*) <sup>10</sup>
Starfruit	<i>Averrhoa carambola L.</i>	7.5 <sup>8</sup>	(*) <sup>10</sup>
Stonesbaer	<i>Prunus cerasus L. cv. Stevnsbaer</i>	17.0 <sup>8</sup>	(*) <sup>10</sup>
Strawberry	<i>Fragaria X. Ananassa Duchense</i> ( <i>Fragaria Chilensis Duchesne x Fragaria virginiana Duchesne</i> )	7.5 <sup>8</sup>	40.0 <sup>8</sup>

<b>Fruit's Common Name</b>	<b>Botanical Name</b>	<b>Minimum BrixLevel Reconstituted Fruit Juices<sup>7</sup></b>	<b>Minimum juice and/or purée content (% v/v) for Fruit Nectars</b>
Sugar Apple	<i>Annona squamosa L.</i>	14.5 <sup>8</sup>	(*) <sup>10</sup>
Cherry, Suriname	<i>Eugenia uniflora Rich.</i>	6.0 <sup>8</sup>	25.0 <sup>8</sup>
Cherry, Sweet	<i>Prunus avium (L.) L.</i>	20.0 <sup>8</sup>	(*) <sup>10</sup>
Sweet grapefruit (Oroblanco)	<i>Citrus paradisi + Citrus grandis</i>	10.0 <sup>8</sup>	(*) <sup>10</sup>
Tamarind (Indian date)	<i>Tamarindus indica</i>	13.0 <sup>8</sup>	30.0 <sup>8</sup>
Tomato	<i>Lycopersicum esculentum L.</i>	5.0 <sup>8</sup>	(*) <sup>10</sup>
Umbu	<i>Spondias tuberosa Arruda ex Kost.</i>	9.0 <sup>8</sup>	(*) <sup>10</sup>
Water Melon	<i>Citrullus lanatus (Thumb.) Matsum. &amp; Nakai var. lanatus</i>	8.0 <sup>8</sup>	(*) <sup>10</sup>
White Currant	<i>Ribes rubrum L.</i>	10.0 <sup>8</sup>	30.0 <sup>8</sup>
White Goosberry		(*) <sup>10</sup>	30.0 <sup>8</sup>
Whortleberry		(*) <sup>10</sup>	30.0 <sup>8</sup>
Youngberry		10.0 <sup>8</sup>	(*) <sup>10</sup>
Other: High acidity			Adequate content to reach a minimum acidity of 0.5
Other: high pulp content, or strong flavour			25.0 <sup>8</sup>
Other: low acidity, low pulp content, or low/medium flavour			50.0 <sup>8</sup>

**GENERAL COMMENTS TO THE  
PROPOSED DRAFT CODEX GENERAL STANDARD FOR FRUIT JUICES AND NECTARS**

**Drafting Group Meeting of the  
Ad Hoc Intergovernmental Codex Task Force on Fruit and Vegetables Juices,  
October 14-18, 2002 Brasilia, Brazil**

The Drafting Group<sup>1</sup> revised the proposed draft Codex General Standard for Fruit Juices and Nectars as directed by the 2<sup>nd</sup> session of the Ad Hoc Intergovernmental Codex Task Force on Fruit and Vegetables Juices. The revision was made in the light comments made at the 2<sup>nd</sup> Session of the Task Force and in response to CL 2002/14-FJ.<sup>2</sup>

On Monday, 14 October, the meeting started with opening remarks by Maria Isabel Vieira, Departamento de Produtos de Base Chief, Ministry of Foreign Relations of Brazil.

Rudi Braatz, from the Ministry of Agriculture, took over as Chairman of the Drafting Group and submitted a work sequence proposal which was accepted by the participants, as follows

- 1.) Text in brackets
- 2.) Additives
- 3.) Processing Aids
- 4.) Brix (data as presented by delegations, including a proposal by the U.S. on methodology of work)
- 5.) Vegetable Standard
- 6.) Report to the plenary session in May, explaining the reasons for changes

A consolidated comment document, prepared by the Brazilian Secretariat, was presented to facilitate the discussions.

**PROPOSED DRAFT CODEX GENERAL STANDARD FOR FRUIT JUICES AND NECTARS**

**1. Discussion of Bracketed Text, which resulted in the attached draft version.**

**Definitions**

**Issue:** [added]

**2.1.1 Fruit Juice (3<sup>rd</sup> para.)**

**Discussion:** None of the delegations disagreed with the term “restored”. However, several delegations objected to the use of the term “added,” reasoning that any addition needs to be labelled. Paragraphs 20 and 21 of ALINORM 03/39 were cited. The delegate of the Netherlands reiterated the reservation expressed by EU in paragraph 18 of ALINORM 03/39.

**Conclusion:** It was decided to delete the bracketed term “added” and allow restoration of aromatic substances and volatile flavour components to normal levels in the natural fruit. A footnote defining the term “restored” was added for clarity. The footnote is: “Introduction of aromas and flavours are allowed to restore the level of these compounds up to the normal level attained in the same kind of fruit.”

Additionally, the sentence “Pulp and cells obtained by suitable physical means from the same kind of fruit may be added” was included at the end of the paragraph.

**2.1.2 Concentrated Fruit Juice, 2.1.4 Fruit Purée and Fruit Nectar**

For consistency with the changes to Section 2.1.1, the same text was included and the expression “added” was removed. These changes are intended to clarify that all juice components are obtained by suitable physical means and recovered from the same kind of fruit.

<sup>1</sup> The Drafting Group was convened under the chairmanship of Brazil, with the assistance of Australia, Cuba, France, Germany, Mexico, Spain, Thailand, the Netherlands, the United States of America, the International Federation of Fruit Juice Producers (IFU) and other Member countries and interested international organizations in Observer status with Codex.

<sup>2</sup> Comments submitted in response to CL 2002/14-FJ: Brazil, Cuba, France, Israel, Japan, New Zealand, Poland, Russia, South Africa, Spain, Switzerland, USA, International Federation of Fruit Juice Producers (IFU) and the World Processing Tomato Council (WPTC).

### 2.1.6 Fruit Nectar

**Issue:** Extra pulp and flavour must be part of the ingredient list and should be allowed to be added. However, these components should not be part of the definition.

**Conclusion:** After further discussion, it was agreed that, for consistency and information purposes it would be appropriate to add the following wording to the definition of fruit nectar (Section 2.1.6): In the first sentence, beginning after “Section 3.1.2” add: “and/or high intensity sweeteners as listed in Section 4.6”. Further, after the first sentence, add the following new sentence. “Aromatic substances, volatile flavour components, pulp and cells, all of which must be recovered from the same kind of fruit and be obtained by suitable physical means may be added.”

Additionally, a New Section 7.1.2.14 (see below) would include the wording: “Aromatic substances, volatile flavour components, and pulp and cells added to nectar over that normally contained in the juice shall be declared in the list of ingredients.”

#### **Issue: 3.1.2 (c) Lemon juice or limejuice and 3.1.2 (e) *Citrus reticulata***

**Discussion:** The need for the label declaration of the addition of lemon or limejuice, or *Citrus reticulata* was discussed. Some delegations indicated that the addition of lemon or limejuice could constitute a mixed juice, and that the juice would be required to be so labelled. Other delegations indicated lemon and lime juice are used as an addition to adjust acidity and therefore did not require labelling. With regard to *Citrus reticulata* some delegations reported that it is only used to correct the colour of the juice and, therefore, does not represent a mixed juice and does not require labelling. Other delegations indicated the use of *Citrus reticulata* constituted a mixed juice and therefore required labelling.

**Conclusion:** The Drafting Group reached consensus to include the wording “subject to further national labelling requirements” at the beginning of Section 3.1.2 (c) and 3.1.2 (e) to allow use of *Citrus reticulata* or lemon or lime juice as needed by different countries. This decision will prevent this issue from being an obstacle to consensus on the standard, and assures that importing countries are aware of this addition. The Drafting Group agreed to include the botanical name of lime and lemon.

The bracketed end phrase “not subject to ingredient labelling requirements” was deleted from 3.1.2 (e).

## 7. Labelling

**Issue:** Entire text of Section 7. Labelling in brackets.

**Discussion:** It was observed that this entire section was placed in brackets, as it was not discussed at the 2<sup>nd</sup> Session of the Task Force.

**Conclusion:** The Drafting Group agreed to remove the brackets.

**Issue:** 7.1.1.1 Reference to water-extracted fruit juice as defined in Section 2.1.3

**Discussion:** The need for juice from water-extracted dried fruit (e.g. prune juice) to be labelled differently than directly expressed juice.

**Conclusion:** For Water Extracted Juices, it was agreed to add a new Section 7.1.1.1 bis (numbering to be adjusted) entitled “Water Extracted Fruit Juice defined under Section 2.1.3.” The name of the product shall be “water-extracted \_\_\_\_\_juice” or “water-extracted juice of \_\_\_\_\_.”

**Discussion:** As a consequence of discussing 7.1.1.1, there was a discussion as to how reconstituted juices would be labelled (Section 7.1.2.1). Three positions were advocated:

- 1) Including “from concentrate” in the product name,
- 2) Including “from concentrate” in close proximity to the product name, and
- 3) Including “from concentrate” in the ingredient list.

**Conclusion:** It was agreed that 7.1.2.1 would be amended to read “...the words “from concentrate” or “reconstituted” must be entered in conjunction with or close to the product name....”, using the same text as in the Codex General Standard for Food Labelling.

**Issues: 7.1.2.3 [artificial] and “in conjunction with the product name”****Artificial**

**Discussion:** It was observed that the expression “high intensity sweetener” would be preferable to the expression “artificial sweetener”. It was noted that the expression “artificial” may have negative connotations and that the expression “high intensity” was consistent with terminology in the Codex General Standard for Food Additives (GSFA).

**Conclusion:** The Drafting Group reached consensus on replacing “artificial sweeteners” with “high intensity sweeteners.”

**Discussion:** The Delegation of Mexico referred to CRD 11 for the 2<sup>nd</sup> Session of the Task Force that included low-calorie, reduced calorie and modified nectars. There was an extended discussion to how to accommodate these products in the standard.

**Conclusion:** The Drafting Group reached consensus that the definition of fruit nectar (Section 2.1.6) should be amended as follows in order to accommodate these products: “...honey and/or other sweeteners as described in Section 3.1.2, and/or high intensity sweeteners as defined in Section 4.7 (numbering to be adjusted).

Additionally, the Drafting Group requested that the Brazilian Secretariat, together with the delegation of Mexico informally consult with the Chairpersons of the Codex Committee on Food Labelling (CCFL) and the Codex Committee on Nutrition and Foods for Special Dietary Use (CCNFSDU) to develop appropriate language to provide for light, low calorie and reduced calorie nectars. To this end, the following wording was inserted at the end of Section 7.1.2.3: “Additional language to be added regarding specific Codex texts and/or other language to provide for light, low calorie, reduced calorie, etc. nectars.

**In conjunction with the product name or in close proximity**

**Discussion:** “In conjunction with” the product name was discussed. The term “or in close proximity to the product name” was also suggested.

**Conclusion:** It was agreed the wording “shall be included in conjunction with or in close proximity to the product name.”

**New Section****7.1.2.14 (numbering to be adjusted) Consistency of labelling aroma and other substances added to juices and nectars**

**Discussion:** The need for labelling aromatic substances, volatile flavour components, pulps and cells for juices and nectars were considered. The addition of these substances was discussed in conjunction with the definition of fruit nectars (Section 2.1.6, above).

**Conclusion:** A new Section 7.1.2.14 (numbering to be adjusted) was added as follows: “Pulp and cells added to juice over that normally contained in the juice shall be declared in the list of ingredients. Aromatic substances, volatile flavour components, pulp and cells added to nectar over that normally contained in the juice shall be declared in the list of ingredients.”

**Additives**

**Issue:** The appropriate additives to be used in fruit juices and nectars 4.1 to 4.7 are ingredients not normally present in fruit juices and nectars and should be included in the list of ingredients.

**Discussion:** It was observed that different national legislations have different requirements for food additives and it was proposed to add wording to 7.1.2 that would include the use of additives in fruit juice, according to national legislation. Most delegations did not support this approach, and a discussion of the individual additives in Section 4 was undertaken.

Individual additives**4.1 Acidity Regulators**

**Issue:** Citric acid

**Discussion:** Different views were expressed:

- 1) Citric acid was not used
- 2) It was used only in tropical fruits, and
- 3) Its use should be subject to national legislation.



#### 4.5 Preservatives

**Issues:** Benzoates and Sorbates

**Discussion:** The delegation of the United States proposed the addition of this category. Several delegations requested the deletion of this category. It was noted that this functional effect category was included in a previous draft of this standard as “subject to national legislation.” There was an extensive discussion as to whether preservatives should be used and if so, in which products. The question of the use of preservatives in raw material and bulk export products, and the consequence of carry-over into final products formulated from the raw material was extensively discussed. A consensus was reached to include the use of benzoates and sorbates, provided that it was indicated that the use was subject to national legislation of the importing country. The delegation of Germany reserved its position with respect to the use level and range of products where preservatives should be allowed.

**Conclusion:**

INS 210-213	Benzoic acids & its salts	1 g/l singly or in combination*
INS 200-203	Sorbic acids & its salts	

**\*Subject to national legislation of the importing country**

#### 4.7 Sweeteners

**Issue:** Acesulfame potassium

**Discussion:** Several use levels for this additive were discussed, including levels in the ready-to-drink and concentrated basis. It was noted that the use levels in the concentrated products were not needed if the levels in the diluted, reconstituted product were in compliance with the levels in the ready-to-drink products.

**Conclusion:**

INS 950	Acesulfame potassium	350 mg/l	only for fruit nectars
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**Issue:** Aspartame

**Conclusion:** Taking into account the same consideration as for acesulfame potassium the Drafting Group agreed to:

INS 951	Aspartame	600 mg/l	only for fruit nectars
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**Issue:** Cyclamic acid and its salts

**Conclusion:** The Drafting Group agreed to:

INS 952	Cyclamic acid and its salts	400 mg/l	only for fruit nectars
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However, the delegation of the United States observed that this substance is not a permitted food additive in the United States.

**Issue:** Saccharin and its salts

**Conclusion:** A discussion of the use level was undertaken, noting that the level of 80 mg/l was consistent with data in the GSFA. Consequently, the Drafting Group agreed to:

INS 954	Saccharin and its salts	80 mg/l	only for fruit nectars
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**Issue:** Sucralose

**Conclusion:** The Drafting Group agreed to:

INS 955	Sucralose	300mg/l	only for fruit nectars
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**Issue:** Neohesperidine dihydrochalcone

**Conclusion:** It was observed that this additive has not been assigned an ADI by JECFA, and therefore should not be included in the standard. The delegation of the United States also noted that this substance would not be included in the GSFA until it was assigned an ADI by JEFCA. The Drafting Group agreed to delete the provision for this additive.

**Issue: Other additives**

**Conclusion:** The delegation of the United States proposed the addition of the functional class “Sequestrant” that would include sodium tripolyphosphate at a maximum level of 1 g/l. Since the use of this additive was linked to the use of benzoates and sorbates, it was questioned whether a reference to national legislation was needed. After further discussion, the Drafting Group reached consensus and agreed to add the following provision:

**4.7 Sequestrant**

INS No 451I Sodium tripolyphosphate 1 g/l only to enhance effectiveness of benzoates & sorbates

**4.8 Processing Aids**

The processing aids were discussed individually.

**Antifoaming Agent**

**Issue: Polydimethylsiloxane 10 mg/l**

**Conclusion:** In accordance with the discussion of this substance in Section 4.2 (above), the Drafting Group agreed to remove the brackets.

**Issue: Clarifying Agents/Filtration Aids/Flocculating Agents**

**Conclusion:**

Precipitated calcium carbonate GMP (only in grape juice)

Potassium tartrate GMP (only in grape juice)

The Drafting Group accepted the levels as reported.

**Issue: Calcium hydroxide GMP (only in grape juice)**

**Conclusion:** IFU suggested removing calcium hydroxide because it is not widely used. The Drafting Group agreed to retain this substance, since some countries have requested that it be included.

**Issue: Vegetable carbon GMP (only in grape juice)**

**Conclusion:** IFU requested deletion of this substance, citing that it is the same as active carbon. The Drafting Group agreed to the deletion.

**Issue: Metartaric acid 60 mg/l (only in grape juice)**

**Conclusion:** The delegation of France and IFU requested deletion of this substance. The Drafting Group agreed to the deletion.

**Issue: Adsorbent clays (bleaching, natural or activated earth)**

**Conclusion:** A proposal was made to delete these substances. The Drafting Group agreed to the inclusion of clays, since several countries not present at the Drafting Group requested the use of this substance.

**Issue: Active carbon**

**Conclusion:** For consistency with the deletion of vegetable carbon, the phrase “(only from plants)” was added at the request of several delegations.

**Issue: Albumin**

**Conclusion:** The delegation of the United States opposed the retention of albumin on the list, citing that it is an animal-derived product, which would not be expected in juice. Additionally, the United States observed that even if the use was limited to egg albumin, there would be issues regarding allergenicity, and therefore albumin should be deleted. The Drafting Group reached consensus, and deleted albumin from the list.

**Issue: Chitin/Chitosan**

**Conclusion:** Several delegations requested removal of chitin and to retain only chitosan. The Drafting Group agreed to delete chitin.

**Issue: Bentonite, Diatomaceous earth, Ion exchange resins (cation and anion), Kaolin, Perlite, Tannin, Rice Hulls, Cellulose**

**Conclusion:** After a very brief discussion of each of these substances, the Drafting Group agreed to retain these substances.

**Issue:** Isinglass, PVPP – Polyvinylpyrrolidone, Colloidal silica

**Conclusion:** The delegation of the United States recommended the addition of these substances to the list. The Drafting Group agreed with the addition.

**Issue:** [Gelatin]

**Conclusion:** The delegation of Australia and IFU requested the addition of gelatin as processing aid. The delegation of the United States objected, stating that gelatin may be derived from bovine sources, and such sources are not expected to be present in fruit juice. Additionally, gelatin may solubilize in the juice, and so, could not be considered a processing aid. IFU indicated that this same discussion was held at the 2<sup>nd</sup> Session of the Task Force, and further noted that gelatin is widely used as a processing aid in Europe. IFU also explained that gelatin is now produced mainly from skin and from pork, and therefore, there are no health risks. IFU also stated that gelatin should be removed from juice if it is properly processed. Other delegations also requested that gelatin be added to the list, since it is widely used for clarifying juices. The Drafting Group agreed to add gelatin in brackets for further discussion at the next session of the Task Force.

**Issue:** [Silica sol]

**Conclusion:** IFU requested the addition of this substance. However, the Drafting Group agreed to place it in brackets until it could be confirmed if silica sol and colloidal silica are the same substance.

The Drafting Group also briefly discussed the IFU proposal to include casein, and sodium and potassium caseinates in the list. Since these substances are not widely used, and may have associated allergenicity issues, the Drafting Group agreed not to include these substances in the list.

**Issue:** Enzyme preparations

**Conclusion:** Pectinases (for breakdown of pectin),  
amylases (for breakdown of starch),  
[proteolytic enzymes (for breakdown of protein), and  
cellulases (limited use to facilitate disruption of cell walls)]

The specific identity of enzymes to be included in the list was discussed. Several delegations expressed concern regarding the use of cellulases, due to the potential of liquefaction of the fruit. The Drafting Group agreed to the list of enzymes above. Proteolytic enzymes were placed in brackets as it was not clear as to whether these enzymes were used in juice processing. Cellulases were placed in brackets due to the concern regarding total liquefaction.

Additionally, the Drafting Group decided to move the current wording in the “Substance” column of the table to the “Maximum Level” column, with the following modification of the wording: “...cellulose content of the processed fruit.”

### **Brix Tables**

**Issue:** Whether or not to review individually the Brix values in the tables A1 and A2.

**Conclusion:** The Drafting Group would concentrate its discussion only on these Brix values not agreed upon in the April meeting in Rio de Janeiro.

**Issue:** Whether or not to retain table A1 (Directly expressed fruit juice).

**Conclusion:** The Drafting Group understood that this table should remain in the Standard with a limited number of fruit juices. The following fruits were removed from the table: cashewapple, guava, lemon, passionfruit and soursop. Banana was included. For directly expressed fruit juices not listed in this table, the Brix shall be the Brix as expressed from the fruit.

**Issue:** Criteria for the establishment of Brix values in the tables.

**Conclusion:** For those fruits on which the Drafting Group was able to reach consensus, based on available statistical data provided by several delegations, a Brix value was provided. For those controversial values, the Drafting Group agreed to issue a CL giving time until end of February, 2003 for member countries to present statistical data on Brix values and associated export tonnage.

**Issue:** Brix values (Directly expressed)

**Conclusion:** The following values were established: apple, grape, grapefruit, mango and pineapple (see revised draft). For the following, additional statistical data would be requested: banana and orange.

**Issue:** Brix values (Reconstituted)

**Conclusion:** The following values were established: apple, blackcurrant, melon and tomato, raspberry (red), cherry sour, tamarind (see revised draft). For the following, additional statistical data would be requested: banana, grape, guava, kiwi, lemon, lime, mandarine/tangerine, mango, orange, papaya, passionfruit, pineapple. The US proposed that for lemon and limejuice, instead of Brix, acid content be used. The US proposed 4.5 % acid content for both calculated as citric acid. The same approach was proposed for tamarind.

**Issue:** Combining of both Brix tables (Directly expressed and reconstituted)

**Conclusion:** Mexico with the support of Australia and Cuba proposed to utilize a single Brix table where the minimum Brix values would be established for fruit juices. References would be included for an appropriate set of analytical parameters for each fruit to ensure authenticity. The Drafting Group did not agree to this proposal. Australia, Cuba and Mexico reserved their position on this decision and requested the Secretariat to include this issue in the agenda of the plenary session of the Task Force that will take place next May, 2003.

**Issue:** Missing text about purée

**Conclusion:** For the sake of consistency, reference to Brix values for purées were included where appropriate.

**Issue:** Aromatic and other substances also for purées

**Conclusion:** The Brazilian Secretariat was instructed to insert this reference in the items 2.1.4, 2.1.5, 7.1.1.4 (new), 7.1.1.5 (new), 7.1.2.2, and 7.1.2.4 as proposed by Cuba.

**Issue:** Inappropriate inclusion of a sugar; Inconsistencies in sugar terms.

**Conclusion:** The Drafting Group agreed that dextrose monohydrate has more than 2% moisture and therefore should be excluded from item 3.1.2 (a). Germany noted that the terms “white sugar” and “plantation or mill sugar” should be used instead of sucrose, as the term sucrose was not provided for in the Codex *Standard for Sugars* (Codex Standard 212-1999 (Amendment 1- 2001)). The Drafting Group noted that the term “sucrose” is commonly used whereas the terms “white sugar” and “plantation mill sugar” are not commonly used and agreed to remove the reference to the CX STAN 212-1999 from item 7.1.2.3. Germany and US will inform the Task Force in the May 03 meeting about the possible inconsistency of a reference to the sugar standard, and propose the appropriate change in the text.

**Issue:** Sugar limits in the standard

**Conclusion:** The Drafting Group agreed that the Task Force should not address this issue in the standard.

**Issue:** Minimum juice content for nectars in table A.2.

**Conclusion:** The percentages for the following fruits were established: Apricot, Banana, Grapefruit, Guava, Mango, Melon, Orange, Papaya, Peach, Pear and Pineapple. No agreement was reached on Passionfruit. Therefore in this specific case “Subject to national legislation of the importing country” will be indicated as a footnote.

**Issue:** Brix values Methodology

**Conclusion:** The Drafting Group agreed that the United States, with the assistance of Mexico, would develop options to develop Brix data with respect to fruit and vegetable juices on which consensus was not reached. The options would: include a statistical approach; would include information on export volume; provide a means to analyze data on a comparable basis; and, provide a means to take into account countries with lower export volume. The options, along with a request for Brix data, would be presented to Member countries by means of a Circular Letter.

**Issue:** Submission of CL to Codex member countries.

The Brazilian Secretariat will ask the Codex Secretariat to prepare a Circular Letter requesting comments on two items:

- 1 – Data on Brix values based on the proposed methodology and structure of presentation of the data, to be submitted by February 28, 2003;
- 2 – The Proposed Draft particularly those items in brackets, to be submitted by March 31, 2003.