

KENYA STANDARD

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Fruit juices and nectars - Specification

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Fruit juices and nectars - Specification

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FOREWORD

This Kenya Standard was developed by the Technical Committee on Processed Fruits and Vegetables under the guidance of the Standards Projects Committee, and it is in accordance with the procedures of the Kenya Bureau of Standards.

The standard stipulates the essential compositional, quality, microbiological, contaminants and labelling requirements for fruit juices, fruit nectars, concentrated fruit juices and all other products relating and similar to fruit juice as defined in section 4.2 of this standard.

In the preparation of this standard useful information was derived from members of the technical committee, Codex general standard for fruit juices and nectars (CODEX STAN 247-2005) and local manufacturers

This standard replaces the following standards:

KS 553:2004; Lemon fruit juice preserved exclusively by physical means - Specification (First Edition)
KS 556:2004 Pineapple fruit juice preserved exclusively by physical means - Specification (First Edition)
KS 1179:1996 Apple fruit juice preserved exclusively by physical means - Specification
KS 552:2008; Grapefruit juice preserved exclusively by physical means - Specification (Third Edition)
KS 407:2004; Orange fruit juice preserved exclusively by physical means - Specification
KS 406:2004; Passion fruit juice preserved exclusively by physical means - Specification (First Edition)
KS COD STAN 83:1981; Specification for concentrated grape juice preserved exclusively by physical means
KS COD STAN 64:1981 Specification for concentrated orange juice preserved exclusively by physical means
KS 405-1&2:1984; Specification for fruit nectars preserved exclusively by physical means - Part 1: Mango nectar - Part 2: Nectars of certain citrus fruits
KS 405-3:1993; Specification for fruit nectars preserved exclusively by physical means - Part 3: Specification for passion fruit nectar.
KS 555:1985 Specification for grape juice preserved exclusively by physical means
KS 557:1985 Specification for guava nectar preserved exclusively by physical means
KS 404:1984 Specification for mango juice preserved exclusively by physical means
KS 554:2004; Apple fruit juice preserved exclusively by physical means - Specification

KENYA STANDARD

Fruit juices and nectars – Specification

1. SCOPE

This Kenya Standard specifies requirements for fruit juices, fruit nectars, concentrated fruit juices and all other products relating and similar to fruit juice as defined in section 4.2 below, intended for direct human consumption or for further processing.

2. Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

KS EAS 38, *labeling of prepackaged foods*

KS EAS 39, *Code of practice for hygiene in the food and drink manufacturing industry*

KS EAS 12, *Drinking (Potable) water- Specification*

KS EAS 803: 2013. *Nutrition labeling – Requirements*

KS EAS 804:2013 *Claims on foods – Requirements*

KS EAS 805: 2013 *Use of Nutrition and health claims*

KS CAC RCP 3; recommended international code of hygienic practice for dried fruits

Codex Stan 195, General Standard for Food Additives

Codex Stan 193, General Standard for contaminants

KS 38, *Plantation (mill) white sugar — Specification*

KS 05-344, *Specification for honey.*

KS EAS 5, *Refined white sugar — Specification*

KS EAS 217-2, *Methods for the microbiological examination of foods - Part 2: General Guidance for the Enumeration of Micro-Organisms-Colony Count Technique at 30°C*

KS EAS 217-8, *Methods for microbiological examination of foods -Part 8: Enumeration of yeasts and moulds*

KS ISO 7251, *Microbiology of food and animal feeding stuffs - Horizontal method for the detection and enumeration of presumptive Escherichia coli - Most probable number technique*

KS ISO 763, *Fruits and vegetable products - Determination of ash insoluble in hydrochloric acid*

KS ISO 2448, *Fruit and vegetable products - Determination of ethanol content*

KS ISO 2172, *Eruit juice - Determination of soluble solids content - Pycnometric method*

KS ISO 2173, *Fruit and vegetable products - Determination of soluble solids - Refractometric method*

KS ISO 5522, *Fruits, vegetables and derived products - Determination of total sulphur dioxide content*

3. Terms and definitions

For the purposes of this standard the following terms and definitions shall apply.

3.1

Authenticity

Maintenance of the product's essential physical, chemical, organoleptic, and nutritional characteristics of the fruit(s) from which it is derived

3.2

Brix

Soluble solids content of the juice

4. Descriptions

4.1. Species description

The species indicated as the botanical name in the Table 2 shall be used in the preparation of fruit juices, fruit purees and fruit nectars bearing the product name for the applicable fruit.

For fruit species not included in the Table 2, the correct botanical or common name shall apply.

4.2. Product description

4.2.1. Fruit juice

Fruit juice is the unfermented but fermentable liquid obtained from the edible part of sound, appropriately mature, ripe and fresh fruit or of fruit maintained in sound condition by suitable means.

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 juices of the fruit from which it is derived. The juice may be cloudy or clear and may have restored aromatic substances and volatile flavour components, all of which shall be obtained by suitable physical means, and all of which shall 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 fruit juice obtained from one kind of fruit.

Blended fruit juices

These are fruit juices obtained by mixing two or more unfermented but fermentable juices or juices and purees, from different kinds of fruits.

Fruit juice is obtained as follows:

- a) Fruit juice directly expressed by mechanical extraction processes; and
- b) Fruit juice from concentrate by reconstituting concentrated fruit juice (4.2.2) with potable water that meets the requirements of KS EAS 12.

4.2.2 Concentrated fruit juice

Concentrated fruit juice is the product that complies with the definition given in 4.2.1, 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 the Table 2.

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 soluble fruit solids are added in-line to the primary juice, before the concentration procedure.

Fruit juice concentrates may have restored aromatic substances and volatile flavor components, all of which shall be obtained by suitable physical means, up to the normal level recovered from the same kind of fruit.

Pulp and cells obtained by suitable physical means from the same kind of fruit may be added.

In the case of citrus fruits, except for lime, the fruit juice is obtained from the endocarp

4.2.3 Fruit juice from Concentrate

Fruit juice from concentrate is the product obtained by reconstituting concentrated juice with potable water that meets the requirements set out in KS EAS 12

The soluble solids content of a fruit juice from concentrate prepared from a fruit specified in Table 2 must have a Brix level of at least the level specified in the corresponding entry in Table 2, as read together with the notes to table 2

4.2.4. Water extracted fruit juice

Water extracted fruit juice is the product obtained by diffusion with water of:

- a) pulpy whole fruit whose juice cannot be extracted by any physical means; or
- b) Dehydrated whole fruit.

Water extracted fruit juice may be concentrated and reconstituted.

The solids content of the finished product shall meet the minimum Brix level for reconstituted juice specified in the Table 2.

4.2.5. Fruit puree for use in the manufacture of fruit juices and nectars

Fruit puree for use in the manufacture of fruit juices and nectars is the unfermented but fermentable product obtained by suitable processes for example, by sieving, grinding, and milling the edible part of the whole or peeled fruit without removing the juice. The fruit shall 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 (CODEX STAN 247-2005)

Fruit puree may have restored aromatic substances and volatile flavour components, all of which shall be obtained by suitable physical means, and all of which shall 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.

4.2.6. Concentrated fruit puree for use in the manufacture of fruit juices and nectars

Concentrated fruit puree for use in the manufacture of fruit juices and nectars is obtained by the physical removal of water from the fruit puree 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 Table2.

Concentrated fruit puree may have restored aromatic substances and volatile flavour components, all of which shall be obtained by suitable physical means, and all of which shall be recovered from the same kind of fruit

4.2.7. Dehydrated fruit juice and powdered fruit juice

Dehydrated fruit juice or powdered fruit juice is the product obtained from fruit juice of one or more species by the physical removal of virtually all of its water content

The solids content of the finished product shall meet the minimum Brix level for reconstituted juice specified in the Table2.

4.2.8. Fruit nectar

Fruit nectar is the unfermented but fermentable product obtained by adding water with or without the addition of sugars, syrups and/or honey, and/or food additive sweeteners to;

- a) Fruit juice,
- b) Fruit juice from concentrate,
- c) concentrated fruit juice,
- d) Water extracted fruit juice,
- e) dehydrated fruit juice,
- f) Powdered fruit juice,
- g) Fruit puree,
- h) Concentrated fruit puree or to
- i) Any mixture of these products (a to h)

Aromatic substances, volatile flavor components, pulp and cells all of which shall be recovered from the same kind of fruit and to be obtained by suitable physical means may be added. That product moreover shall conform to the products defined for fruit nectars in Table 2.

Blended Fruit Nectars

Blended fruit nectar is the unfermented but fermentable product obtained by adding water with or without the addition to Fruit juice,

- j) Fruit juice from concentrate,
- k) concentrated fruit juice,
- l) Water extracted fruit juice,
- m) dehydrated fruit juice,
- n) Powdered fruit juice,
- o) Fruit puree,
- p) Concentrated fruit puree or to
- q) Any mixture of these products (a to h)

of sugars, syrups and/or honey, and/or food additive sweeteners obtained by mixing two or more different kinds of fruits.

NOTE 1 Introduction of aromas and flavours are allowed to restore the level of aromatic substances and volatile flavour components in accordance with good manufacturing practices (GMP).

NOTE 2

For citrus fruits, pulp or cells are the juice sacs obtained from the endocarp.

4.2.9

Fresh fruit Juices

Fresh Fruit juice is the unfermented but fermentable liquid obtained from the edible part of sound, appropriately mature, ripe and fresh fruit, freshly squeezed or extracted and packaged as appropriate and which-

- a) Contains no additives
- b) Has not been subjected to any preserving process other than chilling
- c) Clean and free from exogenous foreign matter
- d) Is practically free from endogenous foreign matter like seeds and bits of peel
- e) Is intended to be sold for consumption within two hours of extraction

5. Essential composition and quality factors

5.1. Composition

5.1.1. Basic Ingredients

5.1.1.1. Directly expressed fruit juices

The Brix level for directly expressed fruit juices shall be the Brix as expressed from the fruit and the soluble solids content of the single strength juice shall not be modified, except by blending with the juice of the same kind of fruit.

5.1.1.2. Reconstituted juice and nectar

The Brix level for the fruit juice that requires reconstitution of concentrated juices or dehydrated/powdered fruit juice (fruit juice powder) shall be in accordance with the minimum Brix level established in Table 2, exclusive of the solids of any added optional ingredients and additives.

If there is no Brix level specified in Table 2, the minimum Brix shall be calculated on the basis of the soluble solids content of the single strength juice used to produce such concentrated juice.

The potable water used in reconstitution shall, at a minimum, meet the requirements of KS EAS 12.

5.1.2. Other permitted ingredients

5.1.2.1. Sugars

Sucrose, glucose (dextrose anhydrous) or fructose with less than 2 % moisture may be added only to products intended for sale to the consumer or for catering purposes.

Both sugars and acidifying agents (listed CODEX STAN 212-1999) shall not be added to the same fruit juice.

5.1.2.2. Honey

Honey and/or sugars derived from fruits may be added only to fruit nectars as defined in (4.2.8).

Sugars in the form of honey or both sugar and honey may be added but at not more than the maximum level specified in table 1. The quality of honey used shall comply with KS 05-344, Specification for honey.

5.1.2.3. Syrups

Syrups (as defined in the *Standard for Sugars*), liquid sucrose, invert sugar solution, invert sugar syrup, fructose syrup, liquid cane sugar, isoglucose and high fructose syrup may be added only to fruit juice from concentrate, as defined in Section 2.1.1.2, concentrated fruit juices, as defined in Section 2.1.2, concentrated fruit purée as defined in Section 2.1.5, and fruit nectars as defined in Section 2.1.6.

5.1.2.4. Lemon and lime juice

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 4.2.1 to 4.2.6.

Lemon juice or lime juice, or both, may be added up to 5 g/L anhydrous citric acid equivalent for acidification purposes to fruit nectars as defined in 4.2.8.

5.1.2.5. *Citrus reticulata* juice

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.

5.1.2.6. Salt and spices and aromatic herbs

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

5.1.2.67 Nutrients

For the purpose of product fortification, essential nutrients such as vitamins and minerals may be added to products fruit juice defined in (4.2.1). Such additions shall comply with national legislation established for this purpose.

NOTE: any optional ingredients added are subject to ingredient labelling requirements (see Clause 10)

5.2 Quality criteria

- a) Shall contain no additives except those stipulated in Table 3 as prescribed in Codex STAN 195
- b) The fruit juices and fruit nectars shall have the characteristic colour, aroma and flavour of juice from the same kind of fruit from which it is made.
- c) The product shall be free from seeds, bits of seed or bits of peel
- d) Shall be free from deterioration or spoilage
- e) The product shall be clean and free from foreign matter
- f) The fruit juices and fruit nectars shall conform to the requirements in Table 1.

Table 1 - Requirements for fruits juices and nectars

Characteristics	Requirement	Method of test
Ethanol, mg/kg. max	3	KS ISO 2448
Acid insoluble ash, mg/kg, max.	20	KS ISO 763
Brix, minimum	See Table 2	KS ISO 2172 and KS ISO 2173 AOAC 983.17
pH, max	4.5	KS ISO 1842

5.3 Verification of composition, quality and authenticity

Fruit juices and nectars shall be subject to testing for authenticity, composition, and quality where applicable and where required.

The verification of a sample's authenticity/quality may be assessed by comparison of data for the sample, generated using appropriate methods included in the Standard, with that produced for fruit of the same type and from the same region, allowing for natural variations, seasonal changes and for variations occurring due to processing.

5.4 Permitted Treatments

1. Mechanical extraction processes
2. The usual physical processes, including in-line water extraction (diffusion) of the edible part of fruit, if the fruit juice obtained in this way complies with-
 - a) In the case of fruit juice, the requirements in 4.2.1; and
 - b) in the case of concentrated fruit juice, the requirements in 4.2.3 ,other than that produced from grapes

3. In the production of grape juice where sulphitation of the grapes with sulphur dioxide has been used, desulphitation by physical means, provided that the total quantity in the finished grape juice does not exceed 10 mg per litre of the juice

Table 2- Minimum Brix level requirements for Reconstituted juice and Reconstituted purée and Minimum juice and/or purée content of common fruit juices and nectars (% v/v) at 20°C

Botanical name	Fruit's Common Name	Minimum Degree Brix Level for Reconstituted Juice and Reconstituted Purée	Minimum Juice and/or Purée Content for Fruit Nectars (% v/v)
<i>Actinidia deliciosa</i> (A. Chev.) C. F. Liang & A. R. Ferguson	Kiwi	15.4	(*) ^c
<i>Anacardium occidentale</i> L.	Cashewapple	11.5	25.0
<i>Ananas comosus</i> (L.) Merrill <i>Ananas sativis</i> L. Schult. f.	Pineapple	10	40.0
<i>Annona muricata</i> L.	Soursop	14.5	25.0
<i>Annona squamosa</i> L.	Sugar Apple	14.5	25.0
<i>Averrhoa carambola</i> L.	Carambola / Starfruit	7.5	25.0
<i>Carica papaya</i> L.	Papaya	11.5	25.0
<i>Chrysophyllum cainito</i>	Star Apple	(*) ^b	(*) ^c
<i>Citrullus lanatus</i> (Thunb.) Matsum. & Nakai var. Lanatus	Water Melon	8.0	40.0
<i>Citrus aurantifolia</i> (Christm.) (swingle)	Lime	(¹) 8.0 ^c	According to the legislation of the importing country
<i>Citrus aurantium</i> L.	Sour Orange	(*) ^b	50.0
<i>Citrus limon</i> (L.) Burm. f <i>Citrus limonum</i> Rissa	Lemon	(¹) 8.0 ^c	According to the legislation of the importing country
<i>Citrus paradisi</i> Macfad	Grapefruit	(²) 10.0 ^c	50.0
<i>Citrus paradisi</i> , <i>Citrus grandis</i>	Sweetie grapefruit	10.0	50.0

<i>Citrus reticulata</i> Blanca	Mandarinel Tangerine	(2)11.8 ^{c)}	50.0
<i>Citrus sinensis</i> (L.)	Orange	(2)10.	50.0
<i>Cocos nucifera</i> L. D'	Coconut	5.0	25.0
<i>Cucumis melo</i> L.	Melon	8.0	35.0
<i>Cucumis melo</i> L subsp. <i>me/o</i> var. <i>inodorus</i> H. Jacq.	Casaba Melon	7.5	25.0
<i>Cucumis me/o</i> L. subsp. <i>melD</i> var. <i>inodorus</i> H. Jacq	Honeydew Melon	10.0	25.0
<i>Cydonia oblonga</i> Mill.	Quince	11.2	25.0
<i>Diospyros khaki</i> Thunb.	Persimmon	(*) ^{b)}	40.0
<i>Empetrum nigrum</i> L.	Crowberry	6.0	25.0
<i>Eriobotrya japonica</i>	Loquat	(*) ^{b)}	(*) ^{c)}
<i>Eugenia syriaca</i>	Guavaberry Birchberry	(*) ^{b)}	(*) ^{c)}
<i>Eugenia uniflora</i> Rich.	Suriname Cherry	6.0	25.0

Botanical Name	Fruit's Common Name	Minimum Brix level for reconstituted fruit juices and reconstituted puree	Minimum Juice and/or Puree Content ("10 v/v)" for Fruit Nectars
<i>Ficus carica</i> L.	Fig	18.0	25.0
<i>Fortunella Swingle</i> sp.	Kumquat	(*) ^{b)}	(*) ^{c)}
<i>Fragaria x. ananassa</i> Duchense(<i>Fragaria chi/oensis</i> Duchesne x <i>Fragaria virginiana</i> Duchesne)	Strawberry	7.5	40.0
<i>Genipa americana</i>	*Genipap.	17.0	25.0
<i>Hippophae e/aeguacae</i>	Sea Buckthorn	(*) ^{b)}	25.0
<i>Hippophae mamnoides</i> L.	Buckthomberry = Sallow-thornberry	6.0	25.0
<i>Litchi chinensis</i> Sonn.	Litchi/Lychee	11.2	20.0
<i>Lycopersicum esculentum</i> L.	Tomato	5.0	50.0
<i>Malpighia</i> sp. (Moc. & Sesse)	Acerola (West Indian Cherry)	6.5	25.0
<i>Malus domestica</i> Borkh.	Apple	10	50.0
<i>Malus prunifolia</i> (Willd.) Borkh.	Crab Apple	15.4	25.0
<i>Malus sylvestris</i> Mill.			
<i>Mammea americana</i>	Mammee Apple	(.) ^{b)}	(*) ^{c)}
<i>Mangifera indica</i> L	Mango	13.5	25.0

<i>Morus sp.</i>	Mulberry	(. >'''	30.0
<i>Musa species</i> including M. <i>acuminata</i> and M. <i>paradisiaca</i> but excluding other plantains	Banana	12	25.0
<i>Passiflora edulis</i>	Yellow Passion Fruit	(.) ^{b)}	(*) ^{c)}
<i>Passiflora edulis Sims. f. edulis</i> <i>Passiflora edulis Sims. f. Flavicarpa O. Def.</i>	Passion Fruit	12.0	25.0
<i>Passiflora quadrangularis</i>	Passion Fruit	14.0	(.) ⁰⁾
<i>Phoenix dactylifera L.</i>	Date	18.5	25.0
<i>Pouteria sapota</i>	Sapote	(*) ^{b)}	(*) ^{c)}
<i>Prunus anneniaca L.</i>	Apricot	11.7	40.0
<i>Prunus avium L.</i>	Sweet Cherry	20.0	25.0
<i>Prunus cerasus L.</i>	Sour Cherry	13.5	25.0
<i>Prunus cerasus L. cv. Stevnsbaer</i>	Stonesbaer	17.0	25.0
<i>Prunus domestica L. subsp. domestica</i>	Plum	12.0	50.0
<i>Prunus domestica L. subsp. domestica</i>	Prune	18.5	25.0
<i>Prunus domestica L. subsp. domestica</i>	Quetsche	12.0	25.0

Botanical Name	Fruit's Common Name	Minimum Brix level for reconstituted fruit juices and reconstituted puree	Minimum Juice and/or Puree Content (% V/V) ^{b)} for Fruit Nectars
<i>Prunus persica</i> (L.) Batsch var. <i>nucipersica</i> (Suckow) c. K. Schneid.	Nectarine	10.5	40.0
<i>Prunus persica</i> (L.) Batsch var. <i>persica</i>	Peach	10.5	40.0
<i>Prunus spinosa L.</i>	Sloe	6.0	25.0
<i>Psidium guajava L.</i>	Guava	8.5	25.0
<i>Punica granatum L.</i>	Pomegranate	12.0	25.0
<i>Pyrus arbustifolia</i> (L.) Pers.	Aronia/Chokeberry	(*) ^{b)}	(*) ^{c)}
<i>Pyrus communis L.</i>	Pear	12.0	40.0

<i>Ribes nigrum</i> L.	Black Currant	11.0	30.0
<i>Ribes rubrum</i> L.	Red Currant	10.0	30.0
<i>Ribes rubrum</i> L.	White Currant	10.0	30.0
<i>Ribes uva-crispa</i>	Red Gooseberry	(*) ^{b)}	30.0
<i>Ribes uva-crispa</i> L.	Goosberry	8.3	30.0
<i>Ribes uva-crispa</i> L.	White Goosberry	(*) ^{b)}	30.0
<i>Rosa canina</i> L.	Cynorrhodon	(*) ^{b)}	40.0
<i>Rosa sp.</i> L.	Rosehip	9.0	40.0
<i>Rubus chamaemorus</i> L.	Cloudberry	9.0	30.0
<i>Rubus chamaemorus</i> L. <i>Morus</i> hybrid	Mulberry	(*) ^{b)}	40.0
<i>Rubus fruitcosus</i> L.	Blackberry	9.0	30.0
<i>Rubus hispidus</i> (of North America) <i>R. caesius</i> (of Europe)	Dewberry	10.0	25.0
<i>Rubus idaeus</i> L. <i>Rubus strigosus</i> Michx.	Red Raspberry	8.0	40.0
<i>Rubus loganobaccus</i> L. H. Bailev	Loganberry	10.5	25.0
<i>Rubus occidentalis</i> L.	Black Raspberry	11.1	25.0
<i>Rubus ursinus</i> Cham. & Schldt!	Bovsenberrv	10.0	25.0
<i>Rubus vitifolius</i> x <i>Rubus idaeus</i> <i>Rubus bailevanis</i>	Youngberry	10.0	25.0
<i>Sambucus nigra</i> L. <i>Sambucus canadensis</i> .	Elderberry	10.5	50.0
<i>Solanum quitoense</i> Lam.	"Lulo"	(*) ^{b)}	(*) ^{c)}
<i>Sorbus aucuparia</i> L.	Rowanberry	11.0	30.0
<i>Sorbus domestica</i>	Sorb	b (.)	30.0
<i>Spondia /utea</i> L.	"CaW"	10.0	25.0
<i>Spondias tuberosa</i> Arruda ex Kosl.	"Umbu"	9.0	25.0
<i>Syzygium jambosa</i>	Pome Apple	(*) ^{b)}	(*) ^{c)}
<i>Tamarindus indica</i>	Tamarind (Indian date)	13.0	Adequate content to reach a minimum acidity of 0.5

<u>Botanical Name</u>	<u>Fruits Common Name</u>	<u>Minimum Brix level or reconstituted fruit juices and reconstituted puree</u>	<u>Minimum Juice and/ or puree content (% v/v) for Fruit Nectars</u>
<i>Theobroma cacao</i> L.	Cocoa pulp	14.0	50.0
<i>Theobroma grandiflorum</i> L.	"Cupuacu"	9.0	35.0
<i>Vaccinium macrocarpon</i> Aiton <i>Vaccinium oxycoccos</i> L.	Cranberry	7.5	30.0
<i>Vaccinium myrtillus</i> L. <i>Vaccinium corymbosum</i> L. <i>Vaccinium angustifolium</i>	Bilberry/Blueberry	10.0	40.0
<i>Vaccinium vilis-idaea</i> L.	Lingonberry	10.0	25.0
<i>Vitis Vinifera</i> L. or hybrids thereof <i>Vitis Labrusca</i> or hybrids thereof	Grape	16.0	50.0
<i>Solanum beceum</i> <i>Cyphomandra betacea</i>	Tree Tomato	(*) (b)	(*) (c)
	<u>Other : High acidity</u>		<u>Adequate content to reach a minimum acidity of 0.5</u>
	<u>Other: High pulp content or strong flavour</u>		25.0
	<u>Other: Low acidity, low pulp content, or low/medium flavour</u>	11.5	50.0

For the purposes of the Standard the Brix is defined as the soluble solids content of the juice as determined by the method found in the Section on Methods of Analysis and Sampling.

- a) 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) No data currently available. The minimum Brix level of the reconstituted juice shall be the Brix level as expressed from the fruit used to make the concentrate.
- c) Acid corrected as determined by the method for total titratable acids in the Section on Methods of Analysis.

- a) This product is 'coconut water' which is directly extracted from the coconut without expressing the coconut meat

NOTE:

Percentage of the juice shall be calculated from concentrate found in a juice using the brix levels listed below where single strength (100%) juice has at least the specified minimum brix listed in table 2 above

¹ indicates anhydrous citrus acid percent by weight

² indicates brix values determined by refractometer for citrus juices shall be corrected for citric acid

If there are no Brix value specified in table 2 above, the labeled percentage of that juice from concentrate in a juice shall be calculated on the basis of the soluble solids content of the single strength (unconcentrated) juice used to produce such concentrated juice

Juices directly expressed from a fruit (i.e., not concentrated and reconstituted shall be considered as '100 percent juice'

Calculation of the percentage of juice in a juice blend or a diluted juice product made from expressed juice (i.e., not from concentrate shall be based on the percentage of the expressed juice in the product computed on volume/volume basis.

For those products which are produced as a puree, only a minimum uncorrected Brix reading (without correction of acid) is determined.

For those products which are produced as juice, a minimum relative density is determined as such in relation to water at 20/20 ° C

6. Food additives and processing aids

Food additives listed in Table 3 below in Food Categories: (Fruit juice), (Concentrates for fruit juice), (Fruit nectar) and (Concentrates for fruit nectar) may be used in foods subject to this Standard, as established by the Codex Alimentarius Commission for these products in Codex Stan 195, General Standard for Food Additives

Food processing aids listed in Table 4 below may be used in the processing of products subject to this standard.

Table 3: Food Additives

Additive	Maximum Level
Fruit Juice	
PHOSPHATES	1000 mg/kg
SODIUM ASCORBATE	GMP
SORBATES	1000 mg/kg
SULFITES	50 mg/kg
TARTRATES	4000 mg/kg

Concentrates for fruit juice	
ASCORBIC ACID, L-	GMP
BENZOATES	1000 mg/kg
CARBON DIOXIDE	GMP
CALCIUM ASCORBATE	GMP
CITRIC ACID	3000 mg/kg
MALIC ACID, DL-	GMP
PECTINS	GMP
PHOSPHATES	1000 mg/kg
SODIUM ASCORBATE	GMP
SORBATES	1000 mg/kg
SULFITES	50 mg/kg
TARTRATE	4000 mg/kg
Fruit nectar	
ACESULFAME POTASSIUM	350 mg/kg
ASCORBIC ACID, L-	GMP
ASPARTAME	600 mg/kg
BENZOATES	1000 mg/kg
CALCIUM ASCORBATE	GMP
CARBON DIOXIDE	GMP
CITRIC ACID 290	5000 mg/kg
CYCLAMATES 330	400 mg/kg
MALIC ACID, DL-	GMP
PECTINS	GMP
SACCHARINS	1000 mg/kg

440	
SODIUM ASCORBATE	80 mg/kg
SORBATES	GMP
SUCRALOSE	1000 mg/kg
TRICHLOROGALACTOSUCROSE	300 mg/kg
SULFITES	50 mg/kg
TARTRATES	4000 mg/kg
Concentrates for fruit nectar	
CESULFAME POTASSIUM 350	350 mg/kg
ASCORBIC ACID, L- S	GMP
ASPARTAME	600 mg/kg
BENZOATES	1000 mg/kg
CALCIUM ASCORBATE	GMP
CARBON DIOXIDE	GMP
CYCLAMATES	5000 mg/kg
PECTINS	400 mg/kg
MALIC ACID, DL-	GMP
PHOSPHATES	1000 mg/kg
SACCHARINS	80 mg/kg
SODIUM ASCORBATE	GMP
SORBATES	1000 mg/kg
SUCRALOSE TRICHLOROGALACTOSUCROSE	300 mg/kg
SULFITES	50 mg/kg
TARTRATE	4000 mg/kg

Table 4 - Maximum level of use of food processing aids in line with good manufacturing practices

Function	Substance
Antifoaming Agent	Polydimethylsiloxane 8)
Clarifying Agents	Adsorbent clays (bleaching, natural or activated earths)
	Adsorbent resins
	Activated carbon (only from plants)
	Bentonite
	Calcium hydroxide ^{b)}
	Cellulose
	Chitosan
	Colloidal silica
	Diatomaceous earth
	Gelatin (from skin collagen)
Filtration Aids	Ion exchange resins (cation and anion)
	Isinglass ^{c)}
	Kaolin
	Pertite
	Polyvinylpolypyrrolidone
	^{c)} Potassium caseinate
	^{b)} Potassium tartrate
Flocculating Agents	^{b)} Precipitated calcium carbonate
	Rice hulls
	Silicasol
	^{c)} Sodium caseinate
	^{b),d)} Sulphur dioxide
	Tannin
	Enzyme preparations.

	Cellulases (limited use to facilitate disruption of cell walls).
Packing gas'	Nitrogen Carbon dioxide
<p>10 mg/L is the maximum residue limit of the compound allowed in the final product.</p> <p>Only in grape juice;</p> <p>Use of these processing aids should take into account their allergenic potential. If there is any carry-over of these processing aids into finished product, they are subject to ingredient declaration in accordance with the KS EAS 38 <i>Standard for the Labelling of Prepackaged Foods</i>.</p> <p>10 mg/L maximum limit (as residual SO₂) when determined in accordance with KS ISO 5522 and KS ISO 5523</p> <p>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 may also be used for example, for preservation</p>	

7. Contaminants

7.1 Pesticide residues

The products covered by the provisions of this standard shall conform to those maximum limits for pesticides established by the Codex Alimentarius Commission for these products in table 4 below

TABLE 4- Pesticide Residues

Fruit Juice	Pesticide	MRL (mg/kg)
Citrus fruit juices Pear Juice Citrus pulp, dry Orange juice	56-2-phenylphenol	10 mg/kg 20 mg/kg 60 mg/kg 0.5 mg/kg
Orange Juice Apple juice Grape juice	Propargite propargate- (113)	0.3 mg/kg 0.2 mg/kg 1 mg/kg
Tomato Juice	Carbaryl- (8) Malathion- (44) Piperonyl butoxide- (62)	3 mg/kg 0.01 mg/kg 0.3mg/kg
Apple juice	Diphenylamine - (30)	0.5 mg/kg
Grape Juice	Clothianidin- (238)	0.2 mg /kg
Citrus juices	Piperonyl butoxide- (62)	0.05 mg/kg

7.2 Heavy Metal Contaminants

The products covered by the provisions of this standard shall conform to those maximum limits for Heavy metals contaminants established by the Codex Alimentarius Commission for these products in table 5 below

TABLE 5- Contaminants

CONTAMINANTS		MAXIMUM LEVEL	Method of Test
Arsenic	(As)	0.2 mg/kg	KS 432
Lead	(Pb)	0.3 mg/kg	
Copper	(Cu)	5.0 mg/kg	
Zinc	(Zn)	5.0 mg/kg	
Iron	(Fe)	15 mg/kg	
Tin	(Sn)	250 mg/kg	
Mercury	(Hg)	0.01	
Cadmium	(cd)	0.05 mg/kg	

7.3 Other contaminants

The products covered by the provisions of this standard shall conform to those maximum levels for contaminants established by the Codex Alimentarius Commission for these products

8. Hygiene

8.1 The products covered by the provisions of this Standard shall be prepared and handled in accordance with KS EAS 39; Code of Hygienic practice in food and drink industry, *Recommended International Code of Practice – General Principles of Food Hygiene* (CAC/RCP 1-1969), and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.

8.2 The products shall conform to microbiological criteria in Table 6 and those provided in KS KS 2455; Food Safety -general standard

Table 6 - Microbiological limits in fruit juices and nectars

<u>Microorganism</u>	<u>Limit</u>	<u>Method of Test</u>
<u>Total Plate Count (cfu/g), max</u>	<u>100</u>	<u>KS EAS 217-2</u>
<u>Escherichia coli, (cfu/g), maxi</u>	<u>Not Detected</u>	<u>KS ISO 7251</u>
<u>Yeasts and Moulds (cfu/g), max</u>	<u>30</u>	<u>KS EAS 217-2</u>

9. Packaging

The products covered by the provisions of this standard shall be packaged in clean food grade packaging material to protect the product from contamination. The packaging materials and process shall not contaminate the product or otherwise affect its technological, nutritional or sensory quality.

10. Labelling

10.1 General labeling requirements

In addition to the Standard for the Labelling of Pre-packaged Foods (KS EAS 38), the following specific provisions apply:

10.1.1 Name of the product

The name of the product shall be the name of the fruit used as defined in Section 4.2. 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 4.2. Or which otherwise conform to this Standard.

10.1.1.1 Fruit Juice defined under Section 4.2.1

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

10.1.1.2 Concentrated Fruit Juice defined under Section 4.2.2

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

10.1.1.3 Water Extracted Fruit Juice defined under Section 4.2.6

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

10.1.1.4 Fruit Purée defined under Section 4.2.4

The name of the product shall be “_____ purée” or “Purée of _____”.

10.1.1.5 Concentrated Fruit Purée defined under Section 4.2.2

The name of the product shall be “concentrated _____ purée” or “_____ purée concentrated”.

10.1.1.6 Fruit Nectars defined under Section 4.2.8

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

10.1.1.7 In the case of fruit juice products (as defined in Section 4.2) manufactured from two or more fruits, the product name shall include the names of the fruit juices comprising the mixture in descending order of proportion by weight (m/m) or the words “fruit juice blend”, “a fruit juice mixture”, “mixed fruit juice” or other similar wording.

10.1.1.8 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.

10.1.2 Additional Requirements

The following additional specific provisions apply:

10.1.2.1 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 the Annex, it shall be labelled “concentrated”.

10.1.2.2 For products defined in Sections 4.2.1 to 4.2.8, where one or more of the optional sugar or syrup ingredients as described in Section 5.1.2(a) and (b) are added, the product name shall include the statement called “sugar(s) added” after the fruit juice or mixed fruit juice’s name. When food additive sweeteners are employed as substitutes for sugars in fruit nectars and mixed fruit nectars, the statement, “with sweetener(s),” shall be included in conjunction with or in close proximity to the product name.

10.1.2.3 Products to be reconstituted before consumption- 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 juices/nectars/purées, the label must bear appropriate directions for reconstitution on a volume/volume basis with water to the applicable Brix value in the Annex for reconstituted juice.

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

10.1.2.5 Juice content declaration- Fruit nectars and mixed fruit nectars must be conspicuously labelled 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 or in conjunction to the name of the juice.

10.1.2.6 Ingredient declaration - An ingredient declaration of “ascorbic acid” when used as an antioxidant does not, by itself, constitute a “Vitamin C” claim.

10.1.2.7 Nutrition declaration - Any added essential nutrients declaration should be labelled in accordance with the *Nutrition labeling – Requirements* (KS EAS 503), *Claims on foods – Requirements* (KS EAS 504) and the *KS EAS 805: 2013 Use of Nutrition and health claims*

For fruit nectars in which a food additive sweetener has been added in order to replace wholly or in part the added sugars or other sugars or syrups, including honey and/or sugars derived from fruits as listed in Sections 3.1.2(a) and (b), any nutrient content claims related to the reduction in sugars should conform to the *Nutrition labeling – Requirements* (KS EAS 503), *Claims on foods – Requirements* (KS EAS 504) and the *KS EAS 805: 2013 Use of Nutrition and health claims*

10.1.2.8 Pictorial representations- A pictorial representation of fruit(s) on the label should not mislead the consumer with respect to the fruit so illustrated.

9.1.2.9 Products containing added carbon dioxide - Where the product contains added carbon dioxide the term “carbonated” or “sparkling” shall appear on the label near the name of the product.

10.1.2.10 Tomato juice containing spices and/or aromatic herbs

Where tomato juice contains spices and/or aromatic herbs in accordance with Section 3.1.2(f), the term “spiced” and/or the common name of the aromatic herb shall appear on the label near the name of the juice.

9.1.2.11 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

10.2 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, distributor 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.

However, lot identification, and the name and address of the manufacturer, packer, distributor or importer may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents. For non-retail containers, the information required shall be given either on the container or in accompanying documents, except that the name of the product, lot identification, and the name and address of the manufacturer or packer shall appear on the container.

10.3 List of Ingredients — a complete list of ingredients including added syrup shall be declared on the label in descending order of proportion.

10.4 Net Contents — the net contents shall be declared by volume in metric units (*Système Internationale*).

10.5 Name r business name and Address of the manufacturer, packager, distributor, importer, exporter or vendor of the product, whichever may apply, shall be declared.

10.6 Instructions for use shall be declared

10.7 Storage conditions or conditions for use

10.8 Lot Identification — each container shall be embossed or otherwise permanently marked in code or in clear identity the producing factory and the lot.

10.9 Place/country of origin

10.8 Date of expiry

10.9 irradiation status, where applicable

11. Methods of sampling and test

The products covered by the provisions of this standard shall be tested using appropriate standard methods declared in this standard. Other test may be performed as per the methods given in the latest AOAC/ Codex/ ISO and other internationally recognized methods.