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**Vegetable juices and drinks —
Specification**

Public review Draft

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Public review Draft

TECHNICAL COMMITTEE REPRESENTATION

The following organizations were represented on the Technical Committee:

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Government Chemist's Department
Premier Foods Ltd.
Ministry of Agriculture, Livestock and Fisheries
Kenya Plant Health Inspectorate Services
National Public Health Laboratory services
Njoro Canning Factory
Coca-Cola East Africa Ltd.
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Vegetable Juices and drinks — Specification

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Foreword

This Kenya Standard was prepared by the processed fruits and vegetables Products Technical Committee under the guidance of the Standards Projects Committee, and it is in accordance with the procedures of the Kenya Bureau of Standards

This Kenya Standard specifies the safety and quality requirements for the Vegetable juices and drinks.

In the preparation of this standard the views of all the relevant stakeholders have been taken into consideration

During the preparation of this standard, reference was also made to the following document:

- a) CODEX Alimentarius Commission, CODEX STAN 247-2005, General Standard for Fruit Juices and Nectars;
- b) KS EAS 77; Fruit drinks – Specification
- c) KS EAS 948; Fruit Juices and nectars

Acknowledgement is hereby made for the assistance derived from this source.

Public review Draft

Vegetable Juices and drinks — Specification

1 Scope

This Kenya Standard specifies requirements and methods of sampling and test for vegetable juices and drinks intended for direct human consumption or for further processing

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EAS 38, *General standard for labeling of prepackaged foods*

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

Codex stan 192, *General standard for food additives*

EAS 153, *Drinking water — Specification*

KS EAS 12, *Potable water specification that has been quoted in the standard.*

KS EAS 36, *Honey Specifications in the normative reference*

EAS 803, *Nutrition labelling — Requirements*

EAS 804, *Claims on food — Requirements*

EAS 805, *Use of nutrition and health claims — Requirements*

ISO 874, *Fresh fruits and vegetables -- Sampling*

KS EAS, *Code of hygienic practice for dried fruits*

Codex Stan 193, *General standard for contaminants and toxins in foods* ISO 4833 - 2, *Methods for the microbiological examination of foods — Part 2: General Guidance for the Enumeration of Micro-Organisms-Colony Count Technique at 30 °C*

ISO 21527-1, *Microbiology of food and animal feeding stuffs -- Horizontal method for the enumeration of yeasts and moulds -- Part 1: Colony count technique in products with water activity greater than 0,95* ISO 7251, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of presumptive Escherichia coli — Most probable number technique*

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

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

ISO 2172, *Fruit juice — Determination of solids content — Pyknometric method*

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

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

ISO 5523, *Liquid fruit and vegetable products – Determination of sulphur dioxide content – (Routine method)*

ISO 6561-1, *Fruits, vegetables and derived products — Determination of cadmium content — Part 1: Method using graphite furnace atomic absorption spectrometry*

ISO 17240, *Fruit and vegetable products — Determination of tin content — Method using flame atomic absorption spectrometric*

ISO 6633 *Fruits, vegetables and derived products -- Determination of lead content -- Flameless atomic absorption spectrometric method*

KS ISO 4833-1, *Microbiology of the food chain — Horizontal method for the enumeration of microorganisms — Part 1: Colony count at 30 degrees C by the pour plate technique*

KS ISO 6579-1, *Microbiology of the food chain — Horizontal method for the detection, enumeration and serotyping of Salmonella — Part 1: Detection of Salmonella spp*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

Aseptic packing

Product, which has first been rendered commercially sterile, is packaged, under aseptic conditions, in a sterile container, which is then hermetically sealed

3.2

Authenticity

Maintenance in the product of the essential physical, chemical, organoleptical and nutritional characteristics of the fruit or vegetable from which the product is made

3.3

Brix

Soluble solids content of the juice

3.4

Commercially sterile

Product has been subjected to a thermal or other physical process, which prevents the survival of viable micro-organisms

3.5

Food grade material

Material that will safeguard the hygienic, safety, nutritional, technological, and organoleptic qualities of the product.

3.6

One gas (carbonation) volume

Amount of carbon dioxide the water volume absorbs at the standard atmospheric pressure at 15.6 °C

3.7

Carbonation

Process of addition of carbon dioxide to Vegetable juices or drinks to achieve the characteristics of the product at the specified temperature and pressure

Process of addition of carbon dioxide to fruit drinks..... The standard is for vegetable juices and drinks
Rephrase to read: process of addition of carbon dioxide to vegetable juices/ drinks.....

3.8

Preserved by physical means

Product treated in one of the following ways:

- a) Canned;
- b) Subjected to aseptic packing;
- c) Blanched and frozen;
- d) Pasteurized and refrigerated; or
- e) Dehydrated

3.9

Reconstituted (from concentrate)

Product prepared by adding potable water and other permitted ingredients to a concentrated vegetable juice

3.10

Single vegetable juice/drink

Juice or drink obtained from one kind of vegetable

Juice obtained from one kind of vegetable – The scope of the standard covers drinks too. Rephrase to read:
Juice or drink obtained from one kind of vegetable

4 Description

4.1 Product description

4.1.1 Vegetable juice

Vegetable juice is the unfermented liquid obtained from the edible parts of sound, appropriately mature and fresh vegetable or of vegetable maintained in sound condition by suitable means.

Replace the words fruit with vegetable

4.1.1.1 Juices shall be processed without pips, seeds and peel.

4.1.1.2 Some parts or components of pips, seeds and peel, which cannot be removed by Good Manufacturing Practices (GMP), shall be acceptable.

4.1.1.3 Juice shall be prepared using processes which maintain the essential physical, chemical, organoleptic and nutritional characteristics of the juice of the fruit or vegetable from which it is derived.

4.1.1.4 Juice may be cloudy or clear and may have restored aromatic substances and volatile flavour components.

4.1.1.5 Where juice contains restored aromatic substances and volatile flavour components, these shall be obtained by suitable physical means and shall be recovered from the same kind of fruit or vegetable.

NOTE 1 Pulp and cells obtained by suitable physical means, from the same kind of fruit or vegetable, may be added.

NOTE 2 for citrus fruits, pulp or cells are the juice sacs obtained from the endocarp

4.1.1.6 Juice shall be obtained as follows:

a) Juice directly expressed by mechanical extraction processes; and

a) b) Juice from concentrate by the process of reconstituting concentrated Vegetable juice (4.2.2) with potable water that meets the requirements of EAS 12.

4.1.2 Vegetable drink (ready to drink)

It is a manufactured beverage intended for direct human consumption which contains vegetable juice, vegetable pulp or other edible parts of the vegetables. It may be made from a single or a mixture of two or more vegetables. It may be sweetened with nutritive or/ and non-nutritive (intense) sweeteners with or without added carbon dioxide and other permitted food additives. These beverages may be clear, cloudy, or may contain particulate matter (for example, fruit pieces, crushed pips, seeds and/or peel of the fruit).

4.1.3 Vegetable and fruit juice/drink blend

Liquid food obtained from either vegetable juice pulp or purées from different kinds of vegetable species, blended with fruit juice or drink

4.1.4 Concentrated vegetable juice

4.1.4.1 Product that complies with the definition of vegetable juice, except that 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 for reconstituted juice from the same vegetable.

4.1.4.2 In the production of juice that is to be concentrated, suitable processes shall be used and may be combined with simultaneous diffusion of the pulp cells or pulp by water, provided that the water extracted soluble solids are added in-line to the primary juice, before the concentration procedure.

4.1.4.3 Juice concentrates may have restored aromatic substances and volatile flavour components.

4.1.4.4 Where juice concentrates contain restored aromatic substances and volatile flavour components, these shall be obtained by suitable physical means and shall be recovered from the same kind of fruit or vegetable.

NOTE Pulp and cells obtained from the same kind of fruit or vegetable may be added.

4.1.5 Water-extracted vegetable juice

4.1.5.1 Water-extracted vegetable juices may be concentrated and reconstituted.

4.1.5.2 The solids content of the finished product shall meet the minimum Brix level for reconstituted vegetable juice specified in the Table 1.

4.1.6 Vegetable purée for use in the manufacture of vegetable juices

4.1.6.1 Vegetables used in the manufacture of purées shall be sound, appropriately mature, and fresh or preserved by physical means or by treatments applied in accordance with the applicable provisions of the CODEX Alimentarius Commission.

4.1.6.2 Vegetable purée may have restored aromatic substances and volatile flavour components.

4.1.6.3 Where vegetable purées contain restored aromatic substances and volatile flavour components, these shall be obtained by suitable physical means recovered from the same kind of vegetable pulp and cells.

4.1.7 Vegetable Pulp

Edible portions of the vegetable, mashed, or cut into pieces, but not reduced to a puree

4.1.8 Blended or mixed vegetable juice or drink

Blended or mixed vegetable juice and drink is the product obtained by adding water with or without the addition of sugars, syrups and/or honey, and/or sweeteners, obtained from two or more different kinds of fruits. The blend can be obtained from the following;

- i. vegetable juice or drink
- ii. Vegetable juice or drink fruit blend
- iii. Concentrated vegetable juice
- iv. Water extracted vegetable juice,
- v. vegetable puree,
- vi. Concentrated vegetable puree.
- vii. Fruit pulp

4.1.9 Fresh vegetable Juices

Fresh vegetable juice is the unfermented but fermentable liquid obtained from the edible part of sound, appropriately mature, ripe and fresh vegetable, 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 or six hours with refrigeration

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 Species description

The species indicated as the botanical name in the Annex A shall be used in the preparation of vegetable juices and drinks bearing the product name for the applicable vegetable.

For Vegetable species not included in the Annex A, the correct botanical or common name shall apply.

5 Requirements

5.1 General

5.1.1 Vegetables intended for use or processing of the product shall comply with relevant Kenya standards for fresh vegetables. The vegetable juices and drinks shall have the characteristic colour, aroma and flavour of juice from the same kind of vegetable and fruit from which it is made.

5.2 Composition and quality

5.2.1 Composition

5.2.1.1 Basic ingredients

5.2.1.1.1 The Brix level of directly expressed vegetable juices shall be the Brix as expressed from the vegetable, 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 vegetable.

5.2.1.1.2 Reconstitution of concentrated vegetable juice shall be in accordance with the minimum Brix level in table 1, excluding the solids of any added optional ingredients and additives.

5.2.1.1.3 Where no Brix level is specified in table 1, or in the case of vegetables, minimum Brix shall be calculated on the basis of the soluble solids content of the single strength juice.

5.2.1.1.4 Potable water shall be used in the reconstitution of vegetables juices and drinks

5.2.1.2 Other permitted ingredients

5.2.1.2.1 Sugars (Sucrose, glucose (dextrose anhydrous) or fructose) and / or non – nutritive sweeteners with less than 2% moisture may be added only to products intended for sale to the consumer or for catering purposes. Honey may also be added.

The quality of honey used shall comply with KS EAS 36.

Both sugars and acidifying agents shall not be added to the same vegetable juice or drink

5.2.1.2.2 Syrups, liquid sucrose, invert sugar solution, invert sugar syrup, fructose syrup, liquid cane sugar, isoglucose and high fructose syrup are allowed only in vegetable juice from concentrate, concentrated vegetable juices and concentrated vegetable purée

NOTE 1 5.2.1.2.1 and 5.2.1.2.2 are applicable only to products intended for sale to the consumer or for catering purposes.

NOTE 2 the addition of both sugars defined in 5.2.1.2.1 and 5.2.1.2.2 and acidifying agents as listed in the General Standard for Food Additives (GSFA) to the same vegetable juice is prohibited.

5.2.1.2.6 Salt, spices and aromatic herbs and their natural extracts may be added to tomato and vegetable juices.

5.2.1.2.7 For the purposes of product fortification, when permitted by national legislation, essential nutrients such as vitamins and minerals may be added to products described in 4.1. Such additions shall comply with the most recent versions of relevant CODEX Alimentarius Commission standards.

NOTE Any optional ingredients added are subject to ingredient labelling requirements (see Clause 12).

5.2.1.2.8 Non-nutritive sweeteners approved for use in the most recent version of the CODEX General Standard for Food Additives (GSFA) may be used in vegetable drinks, as specified in the GSFA.

5.2.2 Quality criteria

5.2.2.1 Vegetable juices and drinks shall have the characteristic colour, aroma and flavour of juice from the same kind of vegetable from which it is made.

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

5.3 Verification of composition, quality and authenticity

Vegetable juices and drinks shall be subject to testing for authenticity, composition, and quality where applicable and where required. The analytical methods used should be as specified in table 1.

5.2 Specific requirement

The vegetable juices and drinks shall conform to the requirements in Table 1.

Table 1 — Requirements for Vegetable juices and drinks

Characteristic	Requirement	Method of test
Ethanol content, %, max.	0.3	ISO 2448
Acid insoluble ash, %, max.	0.02	ISO 763
Min (%) of fruit juice/fruit puree in the final product; vegetable juice drink(RTD) Vegetable Juice	10 Not less than 25	GMP
pH: Vegetable drink (Min) Vegetable Juice (Max)	2.5 4.5	PH Meter
Total soluble solids (^o Brix), min (%)	10	ISO 2173
CO ₂ content (if added)	Not less than one gas volume	Annex B
Note 1; those vegetable juices with less than 10 % brix , shall be characteristic of the natural vegetable brix		

6 Food additives

6.1 Food additives listed in the CXS 192; General Standard for Food Additives (GSFA) in Vegetable juices may be used in foods subject to this Standard. GSFA approved food additives may be used in related products not listed above.

7 Processing aids

7.1 Processing aids listed in Table 2 may be used in the production of foods subject to this standard.

7.2 Processing aids shall be used as specified in Table 2 and or as limited by GMP

Table 2

Table 2 — Maximum level of use of approved food processing aids in line with good manufacturing practices

Function	Substance
Antifoaming Agent	Polydimethylsiloxane ^{a)}

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)
	Ion exchange resins (cation and anion)
Filtration Aids	Isinglass ^{c)}
Flocculating Agents	Kaolin
	Perlite
	Polyvinylpyrrolidone
	Potassium casseinate ^{c)}
	Potassium tartrate ^{b)}
	Precipitated calcium carbonate ^{b)}
	Rice hulls
	Silicasol
	Sodium caseinate ^{c)}
	Sulphur dioxide ^{b), d)}
Tannin	
Enzyme preparations ^{e)}	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).
Packing gas ^{f)}	Nitrogen Carbon dioxide
<p>a) 10 mg/L is the maximum residue limit of the compound allowed in the final product.</p> <p>b) Only in grape juice</p> <p>c) Use of these processing aids should take into account their allergenic potential. If there is any carryover of these processing aids into finished product, they are subject to ingredient declaration in accordance with KS EAS 38.</p> <p>d) 10 mg/L maximum limit (as residual SO₂) when determined in accordance with ISO 5522 and ISO 5523</p> <p>e) 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 vegetable.</p> <p>f) May also be used for example, for preservation</p>	

8 Contaminants

8.1 Pesticide residues

The products covered by the provisions of this Standard shall comply with maximum residue limits (MRLs) for pesticides as established by the CODEX Alimentarius Commission for these products, where no National Regulation exists.

8.2 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.

Table 5 — Maximum limits for heavy metal contaminants for vegetable juices and drinks

S/N	Contaminant	Maximum level (mg/kg)	Test method
ii)	Lead (Pb)	0.3 mg/kg	KS ISO 9526
vi)	Tin (Sn)	150 mg/kg	KS ISO 2447
viii)	Cadmium (cd)	0.2 mg/kg	KS ISO 6561-1

8.3 Other contaminants

The products covered by the provisions of this Standard shall comply with the maximum residue limits (MRLs) for contaminants as established by the CODEX Alimentarius Commission for these products, where no national regulations exist.

9 Hygiene

9.1 The products covered by the provisions of this Standard shall be prepared and handled in accordance with KS EAS 39 and other relevant Codes of Hygienic Practice and Codes of Practice.

9.2 The products shall conform to microbiological criteria in Table 6 and those provided in KS 2455.

Table 6 — Microbiological limits for vegetable juices and drinks

S/N	Microorganism	Limit (CFU/G)	Test method
i)	Total plate count (cfu/g), max.	1000	ISO 4833
iii)	<i>Escherichia coli</i> , per 25 g, (cfu/g), max.	Absent	KS ISO 7251
iii)	Yeasts and moulds (cfu/g), max.	30	KS ISO 6888-1
iv)	<i>Listeria spp.</i> , per 25 g	Absent	ISO 4833-1
	<i>L.monocytogenes</i>	Absent	KS ISO 11290-1 &2
v)	<i>Salmonella</i> , per 25 g	Absent	KS ISO 6579-1
vi)	<i>Enterobacteriaceae</i> , per g	10	

10 Packaging

The products shall be packaged in food grade containers

11 Weights and measures

The products shall be packaged in accordance with the Weights and Measures regulations

12 Labelling

12.1 General labeling requirements

In addition to the requirements of EAS 38, 803,804 and 805 the following specific labelling requirements shall apply and shall be legibly and indelibly marked on the container;

12.2 Name of the product

The name of the product shall bear the name of the vegetable used as defined in 4.1.

The vegetable name shall be filled in the blank of the product name mentioned under this clause. These names may only be used if the product conforms to the definition in 4.1 or which otherwise conform to this standard.

Vegetable drink (ready to drink)

Vegetable and fruit juice/drink blend

Concentrated vegetable juice

Water-extracted vegetable juice

Vegetable purée

Vegetable Pulp

Blended or mixed vegetable juice and drink

11.1.2 Vegetable Juice

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

11.1.3 Concentrated Vegetable juice

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

11.1.4 Water extracted vegetable juice

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

11.1.5 Vegetable Purée

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

11.1.6 Vegetable Pulp

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

11.1.7 Vegetable and fruit juice/drink blend

In the case of vegetable juice products (4.1) manufactured from two or more vegetables, and blended with fruit juice or drink, the product name shall include the names of the Vegetable juices comprising the mixture in descending order of proportion by weight (m/m) or the words "Vegetable and fruit juice/drink blend", " a vegetable and fruit juice/drink mixture", "mixed vegetable and fruit juice/drink" or other similar wording.

11.1.8 Products from concentrate

For vegetable juice, 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, the words “from concentrate” or “reconstituted”

shall be entered in conjunction with or close to the product name, standing out well from any background, in clearly visible characters, not less than half the height of the letters in the name of the juice.

11.1.9 Date of manufacture

11.1.10 Expiry date.

11.1.11 Brand /trade name.

11.1.12 List of ingredients.

11.1.13 Net contents.

11.1.14 Instructions for use.

11.1.15 Storage conditions.

11.1.16 Name and address of the manufacturer.

11.1.17 Country of origin.

11.2.2 Additional requirements

11.2.2.1 Products prepared by physically removing water from the vegetable juice

For vegetable juices or mixed vegetable juices/drinks/purées, if the product is prepared by physically removing water from the vegetable 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 vegetable, as indicated in Table 1, it shall be labelled “concentrated”.

11.2.2.2 Products one or more of the optional sugar or syrup ingredients are added

For products defined in 4.1.1 to 4.1.5, where one or more of the optional sugar or syrup ingredients as are added, the product name shall include the statement called “sugar(s) added” after the vegetable juice or mixed vegetable juice’s name.

11.2.2.3 Products to be reconstituted before consumption

Where concentrated vegetable juice, concentrated vegetable purée, or mixed concentrated fruit juice/ purée is to be reconstituted before consumption as vegetable juice, vegetable purée, or mixed vegetable juices/purées/drinks, the label shall bear appropriate directions for reconstitution on a volume/volume basis with water to the applicable Brix value in the Table 1 for reconstituted juice.

11.2.2.4 Varietal denominations

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

11.2.2.5 Juice content declaration

Vegetable juices and drinks shall be conspicuously labelled with a declaration of “juice content ___%” with the blank being filled with the percentage of purée and/or vegetable 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 half the height of the letters in the name of the juice.

11.2.2.6 Nutrition declaration

Any added essential nutrients declaration shall be labelled in accordance with US EAS 803, US EAS 804, US EAS 805.

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

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 vegetables any nutrient content claims related to the reduction in sugars shall conform to US EAS 803, US EAS 804 and US EAS 805...

11.2.2.7 Pictorial representations

A pictorial representation of vegetable(s) on the label shall not mislead the consumer with respect to the fruit so illustrated.

11.2.2.9 Products containing added carbon dioxide

Where the product contains added carbon dioxide minimum of one gas volume the term “carbonated” or “sparkling” shall appear on the label near the name of the product.

11.2.2.10 Vegetable juice containing spices and/or aromatic herbs

Where vegetable juice contains spices and/or aromatic herbs in accordance with Section 5.1.2.6 the term “spiced” and/or the common name of the aromatic herb shall appear on the label near the name of the juice.

11.2.2.11 Juice containing added pulp, cells, aromatic substances or volatile flavour components

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.

12 Methods of sampling

The fruit nectar and concentrate shall be sampled in accordance to ISO. 874

ANNEX A: LIST OF VEGETABLES COMMON NAME AND THEIR BOTANICAL NAMES

ARTICHOKES *Cynara scolymus*

ASPARAGUS *Asparagus officinalis*

Broccoli *Brassica oleracea* var. *botrytis*

Brussels sprouts *Brassica oleracea* var. *gemmifera*

Cabbage (red, white, Savoy) *Brassica oleracea* var. *capitata*

Cabbage, Chinese *Brassica chinensis*

Cabbage, for fodder *Brassica* spp.

Carrot, *Daucus carota* ssp. *sativa*

Cauliflower *Brassica oleracea* var. *botrytis*

Celery *Apium graveolens*

Cucumber *Cucumis sativus*

Eggplant *Solanum melongena*

Endive *Cichorium endivia*

Fenugreek *Trigonella foenum-graecum*

Fig *Ficus carica*

Kale *Brassica oleracea* var. *acephala*

Leeks other alliaceous vegetable leeks *Allium porrum*

Lettuce *Lactuca sativa*;

Mustard *Brassica nigra*; *Sinapis alba*

Okra *Abelmoschus esculentus*

Pumpkin, edible *Cucurbita* spp.

Radish *Raphanus sativus* (inc. *Cochlearia armoracia*)

Red beet *Beta vulgaris*

Rutabaga (swede) *Brassica napus* var. *napobrassica*

Spinach *Spinacia oleracea*

Pumkins, Squash, Gourds *Cucurbita* spp.

Tomato *Lycopersicon esculentum*

Turnip, edible *Brassica rapa*

Note 1: If a juice is manufactured from a fruit not mentioned in the above list, it shall, 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 vegetable used to make the concentrate.

Note 2: For mixed and blended vegetables juices and drinks the brix of the product shall be declared in the label

ANNEX B: Method of measuring gas volume

Principle

The method involves sniffting of the top gas. The pressure reading should drop to 2 psi, to remove the air before testing for carbon dioxide volume. In so doing correction of altitude as per table should be considered as pressure is affected by altitude.

The apparatus consists of pressure gauge having a hollow spike with holes in its side. The bottle is inserted from the side into the slot provided in the neck of the carbon dioxide tester and is secured in place by tightening with a threaded system. The pressure gauge is inserted until the needle point touches the crown cork. There is a snift valve on the gauge stem which is kept closed until the needle point of the pressure gauge is forced through the crown cork. The reading is noted on the gauge.

Procedure

Clamp the bottle in the frame of the gas volume tester. Pierce the crown cork but do not shake the bottle. Snift off the top gas quickly until the gauge reading drops to zero. Make certain to close the valve instantly the needle touches zero in the pressure gauge. Shake the bottle vigorously until the gauge gives the reading that additional shaking does not change. Record the pressure. Note the temperature and record. Obtain the volume of gas from pressure-temperature chart (Carbon dioxide chart)