

KENYA STANDARD

DKS 2685: 2016
ICS 67.160

Canned Vegetables - Specification

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Canned Vegetables- 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 canned vegetables as defined in this standard. These vegetables include canned asparagus, carrots, green peas, green beans and wax beans, mature processed peas, palmito, canned sweet corn

In the preparation of this standard useful information was derived from members of the technical committee, Codex I standard for certain canned vegetables (CODEX STAN 297-2009) and local manufacturers

This Kenya standard replaces the following standards:

Canned asparagus (CODEX STAN 56-1981);
Canned carrots (CODEX STAN 116-1981);
Canned green peas (CODEX STAN 58-1981);
Canned green beans and wax beans (CODEX STAN 16-1981);
Canned mature processed peas (CODEX STAN 81-1981);
Canned palmito (CODEX STAN 144-1985), and
Canned sweet corn (CODEX STAN 18-1981).

PUBLIC REVIEW DRAFT

KENYA STANDARD

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Canned Vegetables – Specification

1. SCOPE

This Kenya Standard specifies requirements and methods of test and sampling for Certain canned vegetables, as defined in Section 3 below. The products covered in this standard includes canned; asparagus, carrots, green peas, green beans and wax beans, mature processed peas, palmito and, sweet corn.

This products are Intended for direct Consumption or, including for catering purposes or for repackaging if required.

It does not apply to the product when indicated as being intended for further processing.

This Standard does not cover vegetables that are lacto-, pickled or preserved in vinegar.

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.

AOAC 968.30 (Codex General Method for processed fruits and vegetables)

AOAC 971.33 (Codex General Method for processed fruits and vegetables)

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; Nutrition labeling – Requirements

KS EAS 804:2013 Claims on foods – Requirements

KS EAS 805; Use of Nutrition and health claims

Codex Stan 195, General Standard for Food Additives

Codex Stan 193, General Standard for contaminants

KS 38, Plantation (mill) white sugar — Specification

KS 344; Honey- Specification

KS EAS 5, Refined white sugar — Specification

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 6888-1; Microbiology of food and animal feeding stuffs -- Horizontal method for the enumeration of coagulase-positive staphylococci (*Staphylococcus aureus* and other species) -- Part 1: Technique using Baird-Parker agar medium

KS ISO 16649-1;; Microbiology of food and animal feeding stuffs -- Horizontal method for the enumeration of beta-glucuronidase-positive *Escherichia coli* -- Part 1: Colony-count technique at 44 degrees C using membranes and 5-bromo-4-chloro-3-indolyl beta-D-glucuronide

KS ISO 762; Fruit and vegetable products -- Determination of mineral impurities contentKS 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, Fruit 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 DESCRIPTION

3.1 Product definition

3.2. Canned vegetables are the products:

(1) prepared from substantially sound, fresh (barring mature processed peas) or frozen vegetables, as defined in the corresponding Annexes, having reached appropriate maturity for processing. None of their essential elements are removed from them but they shall be washed and prepared appropriately, depending on the product to be produced. They undergo operations such as washing, peeling, grading, cutting, etc., depending on the type of product.

(2) A packed with a suitable liquid packing medium in accordance with clause 3.1.3.

(b) Vacuum packaged with packing media that does not exceed 20% of the product's net weight and when the container is sealed in such conditions as to generate an internal pressure in accordance with good manufacturing practices.¹

(3) processed by heat, in an appropriate manner, before or after being hermetically sealed in a container, so as to prevent spoilage and to ensure product stability in normal storage conditions at room temperature.

3.2.1. Asparagus

The name "asparagus" stands for the product prepared from the tender and edible portions of peeled or unpeeled stems of varieties of asparagus complying with the characteristics of *Asparagus officinalis* L.

3.2.2. Carrots

The name "carrots" stands for the product prepared using clean and sound roots of varieties (cultivars) of carrots complying with the characteristics of the species *Daucus carota* L., trimmed of their tops, green extremities and peel.

3.2.3. green beans or wax beans

The names "green beans" or "wax beans" stand for the products prepared from the pods (or runners), incompletely ripe and with cut off ends from varieties in accordance with the characteristics of the species *Phaseolus vulgaris* L., *Phaseolus coccineus* L., or *Phaseolus multiflorus* LMK. Beans of distinct varietal groups with respect to shape may be designated as:

(1) **Round:** beans having a width not greater than 1 ½ times the thickness of the bean.

(2) **Flat:** beans having a width greater than 1 ½ times the thickness of the bean.

3.2.4. Green peas

stands for the product prepared from immature (green) seeds of *Pisum sativum* L. peas, of the smooth, wrinkled varieties, or other types (crosses or hybrids of the wrinkled or round seeded varieties) but excluding the subspecies *macrocarpum*.

When the peas are of sweet green wrinkled varieties or hybrids having similar characteristics, the name is "sweet green peas".

3.2.5. Hearts of palm / palmito

stands for the product prepared from the terminal buds of palms (upper and inferior meristems), where young stems rise, trimmed of fibrous and non-edible parts. The product has a heterogeneous structure and has the characteristics of species of palms fit for human consumption.

3.2.6. Mature processed peas

Stands for the product prepared using clean, sound, whole, threshed, and dried grains of the species *Pisum sativum* L., which has undergone soaking, but excluding the *macrocarpum* sub-species.

3.2.7. Sweet corn

Stands for the product prepared from clean and sound grains of sweet corn, of white or yellow colour, complying with the characteristics of *Zea mays saccharata* L. Whole grains packaged with or without a liquid packing media.

Creamed corn: whole or partially whole cut kernels packed in a creamy component from the corn kernels, and other liquid or other ingredients, in accordance with the Section 2.1, so as to form a product of creamy consistency.

3.2.8. Baby corn or young corn

stands for the product prepared from selected young corn cob fresh or canned, without pollination of commercial varieties conforming to the characteristics of *Zea mays* L., from which silk and husk are removed.

3.2.9. Mixed Vegetables

3.3 Styles and Sizing

In addition to the styles and sizing defined in the corresponding Annexes, any other styles should be permitted as indicated in clause 3.3.1.

3.3.1 Other Styles

Any other presentation of the product should be permitted provided that the product:

- (1) is sufficiently distinctive from other forms of presentation laid down in the Standard;
- (2) meets all relevant requirements of the Standard, including requirements relating to limitations on defects, drained weight, and any other requirements which are applicable to that style which most closely resembles the style or styles intended to be provided for under this provision; and
- (3) is adequately described on the label to avoid confusing or misleading the consumer.

5. Essential composition and quality factors

5.1. Composition

5.1.1. Basic Ingredients

Vegetables as defined in clause 3 and liquid packing medium appropriate to the product

5.1.1.1. Other Permitted Ingredients

- (1) native starch for creamed corn;
- (2) For the sweet corn: pieces of green or red peppers mixed or not or other vegetables in a total proportion under 15% m/m of the net weight of the product.

5.1.2.1 Packing Media

5.1.2.1.1 Basic Ingredients

Water, and if necessary salt

5.1.2.1.2 Other Permitted Ingredients

Packing media may contain ingredients subject to labelling requirements of Section 8 and may include, but is not limited to:

- (1) Permitted Sweetening agents such as sugar, honey;
- (2) Aromatics plants/herbs, spices or extracts thereof, seasoning; Spices and aromatic herbs/plants or extracts thereof, seasoning
- (3) Vinegar;
- (4) Fruit juice or concentrated fruit juice; (5) oil;

(6) Tomato puree.

5.2 Quality Criteria

5.2.1 Colour, Flavour and Texture

Canned vegetables shall have normal colour, flavour and odour of canned vegetables, corresponding to the type of vegetable and packing medium used and shall possess and maintain the product's essential texture, physical, chemical, organoleptic, and nutritional characteristics of the vegetable(s).

Creamed corn should present a fine but not excessively fluid consistency, or which may be dense and thick but not excessively dry or pasty, so that after two minutes a moderate but not excessive separation of free liquid can be seen

5.2.2 Uniformity

For every size of whole baby corn, the length of the longest cob should not be more than 3 cm longer than the length of the shortest cob in each container.

Any container or sample unit that exceeds the tolerances laid down in paragraph (1) should be considered as a "defective".

Length: the specifications required regarding the types of presentation of asparagus are met when:

The predominant length of the units in the sample falls within the designated style classification; and

The length of the units is reasonably uniform. By "reasonably uniform", on the basis of the average of the samples, the following is meant:

at least 75% of the number of units do not deviate by more than 1 cm from the most frequent length and at least 90% of the number of units do not deviate by more than 2 cm from the most frequent length.

For whole and baby whole carrots at least 75% by number shall not deviate by more than 5 mm from the average carrot length, and at least 90% by number shall not deviate by more than 10 mm from the average carrot length.

Diameter and other measurements: compliance with respect to the individual size names. When a product is said to be, presented or sold as complying with the names of the individual sizes of Section 1.2, the sample unit should comply with the specified diameter for each individual grade, provided no more than 25% in number of all the units contained in the container belong to the group (or groups) of adjacent sizes.

Any container or sample unit, which exceeds the tolerance of 25% laid down above, should be considered as a "defective" as far as sizing is concerned.

There is a 15% tolerance with respect to the maximum dimension.

Any container or sample unit that exceeds the tolerances set forth in points (1) and (2) above should be considered as a "defective".

) The specifications laid down in Section 1.2 concerning the styles of palm are met when: the length, the diameter and/or the thickness of the sample units, in accordance to the style are reasonably uniform. The words "reasonably uniform" on the basis of the average of samples means, compliance with the provisions of Section 1.2 that:

(a) the gap between the length of all the units and the predominant length does not exceed approximately ± 10 mm;

(b) the gap between the thickness of all the units and the predominant thickness does not exceed ± 10 mm;

(c) the gap between the diameter of all the units and the predominant diameter does not exceed ± 10

5.2.3 Defects and Allowances

Canned vegetables should be substantially free from defects. Certain common defects should not be present in amounts greater than the limitations fixed in the corresponding Annexes.

5.2.3.1 Classification of "Defectives"

A container that fails to meet one or more of the applicable quality requirements, as set out in Section 5.2 (except those based on sample averages), should be considered as a "defective".

5.2.3.2 Lot Acceptance

A lot should be considered as meeting the applicable quality requirements referred to in Section 3.2 when:

- (1) for those requirements which are not based on averages, the number of “defectives”, as defined in Section 3.3, does not exceed the acceptance number (c) of the appropriate sampling plan with an AQL of 6.5; and
- (2) The requirements of Section 3.2, which are based on sample averages, are complied with.

5.2.4 Packing Media

5.2.4.1 Basic Ingredients

Water, and if necessary salt

The potable water used shall comply with the requirements of KS EAS 12

5.2.4.2 Other permitted ingredients

Packing media may contain ingredients subject to labelling requirements of Section 8 and may include, but is not limited to:

5.2.4.2.1 Sugars and Sweetening Agents

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.

5.2.4.2.2 Honey

The quality of honey used shall comply with KS 05-344, Specification for honey.

5.2.4.2.3 Tomato puree.

5.2.4.2.4 Regular or concentrated fruit juice;

5.2.4.2.5 Vinegar;

5.2.4.2.6 Spices and aromatic herbs/plants or extracts thereof, seasoning

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

5.4.2.7 Oil

5.1.2.8 Nutrients

For the purpose of product fortification, essential nutrients such as vitamins and minerals may be added to products. 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)

6. FOOD ADDITIVES

Only those food additive classes listed below and in the corresponding Annexes are technologically justified and may be used in products covered by this Standard. Within each additive class only those food additives listed below and in the corresponding Annexes, or referred to, may be used and only for the functions, and within limits, specified.

6.1 Acidity regulators, colours, colour retention agents and calcium salts of firming agents used in accordance with Table 3 of the *General Standard for Food Additives* (CODEX STAN 192-1995) are acceptable for use in foods conforming to this Standard.

6.2 Colours

INS No.	Name of the Food Additive	Maximum
102	Tartarazine	100 mg/kg
133	Brilliant Blue FCF	20 mg/kg
143	Fast Green FCF	200 mg/kg
150d	Caramel IV - sulfite ammonia caramel	50,000 mg/kg
INS No.	Name of the Food Additive	Maximum Level
385	Calcium disodium ethylenediaminetetraacetate	365 mg/kg (singly or in combination)
386	Disodium ethylenediaminetetraacetate	
512	Stannous chloride	25 mg/kg calculated as tin. Should not be added to foods in uncoated tin cans.

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Table 3: Thickeners (for creamed corn only)

INS	Name of the Food	Maximum
1400	Dextrins, roasted starch	GMP
1401	Acid-treated starch	
1402	Alkaline treated starch	
1403	Bleached starch	
1404	Oxidized starch	
1405	Starches, enzyme treated	
1410	Monostarch phosphate	
1412	Distarch phosphate	
1413	Phosphated distarch	
1414	Acetylated distarch	
1420	Starch acetate	
1422	Acetylated distarch adipate	
1440	Hydroxypropyl starch	
1442	Hydroxypropyl distarch	
1450	Starch sodium octenyl	
1451	Acetylated oxidized starch	

7. Contaminants

The products covered by this Standard shall comply with the maximum levels of the General Standard for Contaminants and Toxins in Food and Feed (CODEX STAN 193-1995).

7.1 Pesticide residues

The products covered by this Standard shall comply with the maximum residue limits for pesticides established by the Codex Alimentarius Commission.

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	AOAC 942.17
Lead	(Pb)	0.3 mg/kg	AOAC 972.25 / KS ISO 6733
Copper	(Cu)	5.0 mg/kg	AOAC 999.10

Zinc	(Zn)	5.0 mg/kg	AOAC972.25 / KS ISO 5738
Iron	(Fe)	15 mg/kg	AOAC 999.10
Tin	(Sn)	250 mg/kg	AOAC 999.10
Mercury	(Hg)	0.01	AOAC 999.10
Cadmium	(cd)	0.05 mg/kg	AOAC 999.11/ KS ISO 6732

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

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 *General Principles of Food Hygiene* (CAC/RCP 1-1969), *Code of Hygienic Practice for Low and Acidified Low-Acid Canned Foods* (CAC/RCP 23-1979) 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 2455; Food Safety - general standard

Table 6 - Microbiological limits for canned vegetables

<u>SL No.</u>	<u>Microorganism</u>	<u>Limit</u>	<u>Method of Test</u>
i.	Total plate count, cfu/g, max	50	KS ISO 4833
ii.	Escherichia coli, (cfu/g), max	Absent	KS ISO 7251
iii.	Staphylococcus aureas, (cfu/25g)	Absent	KS ISO 6888-1
iv.	Shigella, cfu/25g	Absent	KS ISO4833
v.	Salmonella, Cfu/25g	Absent	KS ISO 6579
vi.	Colostridium botulinum, cfu/25g	Absent	KS ISO 4833
vii.	Vibrio cholera, cfu/25g	Absent	KS ISO 4833
viii.	Moulds (cfu/25g), max	Absent	KS ISO 7954

9.3 WEIGHTS AND MEASURES

9.1 Fill of Container

9.1.1 Minimum Fill

The container should be well filled with the product (including packing medium) which should occupy not less than 90% (minus any necessary head space according to good manufacturing practices) of the water capacity of the container. The water capacity of the container is the volume of distilled water at 20oC which the sealed container will hold when completely filled. This provision does not apply to vacuum packaged vegetables. This shall be carried out in accordance to CAC/RM 46-1972 (Codex General Method for processed fruits and vegetables) and ISO 90.1:1999

9.1.2 Classification of “Defectives”

A container that fails to meet the requirement for minimum fill of Section 7.1.1 should be considered as a “defective”.

9.1.3 Lot Acceptance

A lot should be considered as meeting the requirement of Section 7.1.1 when the number of “defectives”, as defined in Section 7.1.2, does not exceed the acceptance number (c) of the appropriate sampling plan with an AQL of 6.5.

9.1.4 Minimum Drained Weight

7.1.4.1 The drained weight of the product should be not less than the percentages indicated in the corresponding Annexes, calculated on the basis of the weight of distilled water at 20oC which the sealed container will hold when completely filled.

Table 7 – Drained weight requirements for Canned Asparagus

Product	Minimum Drained Weight (%)	Method of test
Canned asparagus	50 to 59	AOAC 968.30
Canned Carrots	52 to 62.5	
canned Green beans or wax beans	50 to 52	
canned Green peas	59 to 66	
Canned hearts Palm / Palmito	50 to 52	
canned sweet corn; (1) with a liquid packing medium	61	
(2) vacuum packaged or without a liquid packing medium	67	
Canned baby corn or young corn	40 to 50	

9.1.5 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

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

10.1 Name of the product

10.1.1 For asparagus, colour shall be included into the styles, for white asparagus, the words “not peeled” and/or “not sized” shall be declared in accordance with legislation of country of retail

10.1.2 When colour of mature processed peas is not green, colour of peas should be declared (for example: brown peas or yellow peas).

10.1.3 When green peas are not graded the label may contain in close proximity to the name of the product the words “not graded”.

10.1.4 The name of the product may be “Peas”, “Green Peas”, “Garden Peas”, “Green Garden Peas”, “Early Peas”, “Sweet Peas”, “Petit Pois”, or the equivalent description used in the country of retail sale.

10.1.5 The name “hearts of palm / palmito” may be complemented by the common name of the palm used.

10.1.6 When the vegetables are sized, the size (or sizes when sizes are mixed), as defined in the corresponding Annexes, may be declared as part of the name or in close proximity to the name of the product.

10.1.7. The name of the product shall include the indication of the packing medium as set out in Section 5.2.4.

For canned vegetables packaged in accordance with Section 3.1.2 (b) the words “vacuum packaged” shall be affixed to the commercial designation of the product or in close proximity.

10.1.8. Other styles - If the product is produced in accordance with the other styles provision (Section 3.2.1), the label should contain in close proximity to the name of the product such additional words or phrases that will avoid misleading or confusing the consumer.

10.1.9 If an added ingredient, as defined in Sections 3.1.2 and 3.1.3, alters the flavour characteristic of the product, the name of the food shall be accompanied by the term “flavoured with X” or “X flavoured” as appropriate.

10.1.10 In the case of mixed vegetables; List of the names of the various vegetables species used in the mix shall be listed in descending order of the proportions

10.1.11 for sweet corn, the word “white” shall be declared as part of the name of the product when white variety is used.

10.1.12 when green or red peppers or other vegetables are added (Section 2.1.1 b) a mention is declared in close proximity to the name.

10.2 Additional Requirements

10.2.1 Drain weight declaration content- Canned vegetables must be labelled with a declaration of “Drained weight content ___%.”
10.1.2.6 Ingredient declaration

10.2.2 Nutrition declaration - Any added essential nutrients declaration should be labelled in accordance with the Guidelines on Nutrition Labelling (CAC/GL 2-1985), General Guidelines on Claims (CAC/GL 1-1979) and the CAC/GL 23-1997; Guidelines for Use of Nutrition and Health Claims

10.2.3 Vegetables 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.

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.

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 or 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. Sampling shall be as described in the Standard, in the corresponding Annexes

ANNEX A: Canned Asparagus

A.1 Defects and Allowances

Defects	Definition	Maximum Limits (based on the weight of drained peas)
1) Asparagus tips and other parts crushed	broken or crushed pieces to the extent that they seriously impair the product aspect and comprising fragments under 1 cm in length.	The product should be reasonably free of such defects.
(2) Extraneous material	such as sand, soil or substances from soil.	The product should be practically free of such defects.
(3) Asparagus with skin (only in the case of asparagus presented peeled)	units comprising unpeeled zones which seriously impair the aspect or the edibility of the product.	10% in number
(4) Hollow and fibrous asparagus	hollow units to the extent that they seriously impair the product aspect and fibrous, tough asparagus but that stay edible.	10% in number
(5) Deformed asparagus	comprising spears or tips that are very curved, or any unit seriously impaired by splitting into two or any other malformation and open tips.	10% in number
(6) Damaged asparagus	a colour defect, a mechanical lesion, a disease, which are not harmful for the consumer.	15% in number
Total of all the defects described in (3), (4), (5), (6), for the following types of presentation:		
Defects and Allowances	Maximum	
Asparagus, whole asparagus, whole spears	15% in number	
(2) Short asparagus or short spears	15% in number	

(3) Asparagus tips	15% in number	
(4) Asparagus cut with tips	20% in number	
(5) Cut asparagus without tips	25% in number	

A.2 Styles

A.2.1 Asparagus comes in the following shapes and sizes:

- (1) **Whole asparagus, asparagus or whole spears:** tip and adjoining part of the spear measuring at most 18 cm and at least 12 cm in length.
- (2) **Short asparagus or short spears:** tip and adjoining part of the spear measuring at most 12 cm and at least 7 cm in length.
- (3) **Asparagus tips/points:** upper extremity (bud) and adjoining part of spears measuring at most 7 cm¹ and at least 3 cm in length.
- (4) **Cut asparagus:** spears cut widthways into sections measuring at most 7 cm and at least 2 cm in length.
- (5) **Cut asparagus with tips:** the percentage of tips shall be equal to or greater than 15% of the drained weight.
- (6) **Cut asparagus without tips:** the occasional presence of tips is allowed.

A.2.2 Asparagus are canned as follows in terms of their colour:

- (1) **White asparagus:** white, cream or yellowish spears; no more than 20% in number of spears may have green, light green or yellowish green tips.
- (2) **White asparagus with violet or green tips:** white asparagus may have violet, green, light green or yellowish green tips, and these colours may also apply to the adjoining region, but no more than 25% in number of the units may present these colours over more than 50% of their length.
- (3) **Green asparagus:** the units are green, light green or yellowish green; no more than 20% in number of the units may present a white, cream or yellowish white colour in the lower part of the spear over more than 20 to 50% of their length in accordance with the legislation of the country of retail sale.
- (4) **Mixed:** mixes of white, cream, yellowish white, violet, green, light green or yellowish green units.

ANNEX B: Canned Carrots

B.I Definition of Defects and Allowances

Whole carrots and baby whole carrots, carrots in halves, in quarters, strips

Defects	Definition	Tolerances as a percentage of the drained product weight
(1) Blemished carrots	blemished or faded zones with a diameter above 5 mm.	20
(2) Mechanical damage	carrots that are crushed or grazed during canning.	10
(3) Malformations	deformations or fissures that appeared during growth.	20
(4) Unpeeled parts	30% or more of the surface is unpeeled.	20

(5)	Fibrous	carrots that are hard or woody owing to their fibrousness.	10
(6)	Black or dark green collar	collar with a ring that is one millimetre thick over more than half its circumference.	20
(7)	Extraneous plant material	vegetal substance from the carrot or any other innocuous vegetal matter.	1 piece per 1000 g of total content in

The total amount of defects from (1) to (6) shall not exceed 25% of the drained product weight.

Defects (3), (4) and (6) do not apply to diced, rounds, strips; for these presentations the total amount of defects (1), (2) and (5) shall not exceed 25% of the drained product weight.

B.2 Styles

(1) Whole:

- (a) **Conical or cylindrical cultivars:** carrots, which, after processing, more or less keep their initial shape. The largest diameter of carrots, measured at right angles to the longitudinal axis, shall not exceed 50 mm. The ratio between the diameters of the biggest and smallest carrots shall not be greater than 3:1.
- (b) **Spherical cultivars:** carrots that have reached full maturity, of rounded shape, whose largest diameter in each direction shall not exceed 45 mm.

(2) Baby Whole Carrots:

- (a) **Conical or cylindrical cultivars:** carrots whose diameter does not exceed 23 mm and whose length does not exceed 100 mm.
- (b) **Spherical cultivars:** whole carrots whose diameter in each direction does not exceed 27 mm.

(3) Halves: Carrots cut along the longitudinal axis into two roughly equal parts.

(4) Quarters: Carrots cut into four roughly equal parts by slicing in two points perpendicularly to the longitudinal axis.

(5) Lengthways portions: Carrots sliced lengthways, in a straight or wavy manner, into four or more pieces of roughly equal dimensions of approximately 20 mm long and not less than 5 mm in width measured at maximum width.

(6) Rounds or Sliced: Carrots cut, in a straight or wavy manner, perpendicularly to the longitudinal axis, in rounds with a maximum thickness of approximately 10 mm and a maximum diameter of approximately 50 mm.

(7) Diced: Carrots cut into cubes with an approximately 15 mm sides at most.

(8) Strips, Julienne, French style, or Shoestring: Carrots cut lengthways, in a straight or wavy manner, into sticks. The section of the sticks should not exceed 5 mm (measured at the longest edges of the section).

(9) Chunks or Pieces: Whole carrots cut into sections whose shape or grade may be irregular.

ANNEXC: ON GREEN BEANS OR WAX BEANS

C.1 Definition of Defects and Allowances

Defects	Definition	Maximum Limits (based on the weight of drained peas)
(1) Blemished peas	consisting of peas which are slightly stained or spotted.	5% m/m
(2) Seriously blemished peas	consisting of peas which are spotted, discoloured or other-wise blemished	1% m/m

	(including worm-eaten peas) to the extent that the appearance or eating quality is seriously affected.	
(3) Pea fragments	consisting of portions of peas; separated or individual cotyledons; crushed, partial, or broken cotyledons; and loose skins; but not including entire intact peas with skins detached.	10% m/m
(4) Yellow peas	entire pea is substantially yellow and is not a so-called "blond" pea which is very pale in colour.	2% m/m
(5) Extraneous plant material	consisting of any vine or leaf or pod material from the pea plant, or other harmless plant material not purposely added as an ingredient.	0.5% m/m
TOTAL of the foregoing defects (1), (2), (3), (4), (5)		12% m/m

C.2 Styles

Green beans and wax beans come in the following shapes and sizes: (1)

Whole: whole pods of any length.

- (2) **Cut/Broken:** approximately uniform pods cut or broken widthways with respect to the longitudinal axis; no less than 20 mm long.
- (3) **Short cuts:** pods cut widthways of which 75%, by count, or more are less than 20 mm long.
- (4) **Shoestring, Sliced lengthwise, French style:** pods in strips, of a thickness under 6.5 mm, of which the majority is cut slantwise or lengthways.
- (5) **Diagonal cut:** approximately 45 degrees to the longitudinal axis.

C.3 Sizing (optional)

Green beans and wax beans as defined in Section 1.2 (1) may be graded.¹ If that is the case, they are graded in accordance with the table below. The grade is determined by measuring the diameter on the main axis at the widest point from one suture to the other.

Grading Requirements for round and flat Beans (Green or Wax Beans)

Size			Grading Criterion (maximum diameter -		Maximum percentage (m/m of non conforming beans)
			Rounds	Flat	
(1)	Extra small	1	5.8 - 6.5	-	10%
(2)	Very small	2	7.3 - 8.0	5.8	10%
(3)	Small	3	8.3 - 9.0	7.3	15%
(4)	Medium	4	9.5 - 10.5	8.3	25%
(5)	Large	5	10.5 - 10.7	9.5	
(6)	Extra large	6	more than 10.7	more than 9.5	

(7) Not screened		Not screened (*)	Natural breakdown of the size beans (*)
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(*) Not screened: beans in the natural proportion of size after cleaning, without the removal or addition of screened beans.

- 1 The size designations in the table, or other sizing provisions, may be used in accordance with the legislation of the country of retail sale.
- 2 The maximum diameters indicated in the column « round » are not equivalent to a range; they mean for example for a size “extra small” or “1” that the maximum diameter would be 5.8, or 5.9 or 6.5.

ANNEX D: ANNEX ON GREEN PEAS

D.1 Definition of Defects and Allowances

Defects	Definition	Maximum Limits (based on the weight of drained peas)
1) Blemished carrots	blemished or faded zones with a diameter above 5 mm.	20
(2) Mechanical damage	carrots that are crushed or grazed during canning.	10
(3) Malformations	deformations or fissures that appeared during growth.	20
(4) Unpeeled parts	30% or more of the surface is unpeeled.	20
(5) Fibrous	carrots that are hard or woody owing to their fibrousness.	10
(6) Black or dark green collar	collar with a ring that is one millimetre thick over more than half its circumference.	20
(7) Extraneous plant material	vegetal substance from the carrot or any other innocuous vegetal matter.	1 piece per 1000 g of total content in the contain
TOTAL of the foregoing defects (1), (2), (3), (4), (5)		12% m/m

The total amount of defects from (1) to (6) shall not exceed 25% of the drained product weight. Defects (3), (4) and (6) do not apply to diced, rounds, strips; for these presentations the total amount of defects (1), (2) and (5) shall not exceed 25% of the drained product weight.

D.2 Sizing (optional)

Green peas may be sized in accordance with the table below.¹

Size designation	Diameter in circular sieve openings	
	Will Not Pass Through	Will Pass Through
Smooth Green		

1) Extra Small		7.5
2) Very Small	7.5	8.2
3) Small	8.2	8.75
4) Medium	8.75	9.3
5) Large	9.3	
Wrinkled Sweet Green Peas		
1) Extra Small		7.5
2) Very Small	7.5	8.2
3) Small	8.2	9.3
4) Medium	9.3	10.2
5) Large	10.2	

Defects	Definition	Maximum Limits (based on the weight of drained peas)
(1) Blemished peas	consisting of peas which are slightly stained or spotted.	5% m/m
(2) Seriously blemished peas	consisting of peas which are spotted, discoloured or other-wise blemished (including worm-eaten peas) to the extent that the appearance or eating quality is seriously affected.	1% m/m
(3) Pea fragments	consisting of portions of peas; separated or individual cotyledons; crushed, partial, or broken cotyledons; and loose skins; but not including entire intact peas with skins detached.	10% m/m
(4) Yellow peas	entire pea is substantially yellow and is not a so-called "blond" pea which is very pale in colour.	2% m/m
(5) Extraneous plant material	consisting of any vine or leaf or pod material from the pea plant, or other harmless plant material not purposely added as an ingredient.	0.5% m/m
TOTAL of the foregoing defects (1), (2), (3), (4), (5)		12% m/m

ANNEX E: ON Canned HEARTS OF PALM / PALMITO

D.1 Definition of Defects and Allowances

Defects	Definition	Maximum Limits/ Drained Weight (m/m)
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(1) Defective texture	hard or fibrous and/or excessively soft texture, which seriously impairs product edibility.	10
(2) Mineral impurities	such as sand, gravel or other soil elements.	0.1
(3) Damaged units	Units presenting scars and grazes, abrasions and other imperfections of the same type which seriously impair product appearance.	15
(4) Mechanical damage	broken or split units, fragments or detached pieces, which seriously impair product appearance.	10
(5) Abnormal colour	colour considerably different from the typical colour of the product.	10
(6) Physiological defects	units with palm tree stem apical meristems for “hearts of palm” and “rounds” or “slices” of “hearts of palm”.	10
TOTAL percentage of defects for palm hearts		20
TOTAL percentage of defects for other styles		25

E.2 Styles

(1) Palms are presented as below:

- (a) **“Hearts of palm”** correspond to the terminal bud of the palm, cut perpendicularly to the axis into pieces having a minimum length of 40 mm and a maximum length depending on the size of the container, with a variable shape between conical and cylindrical.
- (b) **“Pieces of palms”** correspond to cuts from both upper and lower portion of the terminal part of meristematic pieces, regularly or irregularly cut with a minimum length of 5 mm and a maximum length of 39 mm.
- (c) **“Rounds”** or **“slices”** of **“hearts of palm”** correspond to the product obtained from the upper portion of the terminal part of meristematic pieces, cut widthways into pieces having a minimum thickness of 15 mm and a maximum thickness of 40 mm.
- (d) **“Medallions”** correspond to pieces regularly cut in circular or oval formats from the lower portion of the terminal part of meristematic pieces of the palm with a minimum diameter of 20 mm and a thickness of 3 to 10 mm.

ANNEX F: ON MATURE PROCESSED¹ PEAS

F.2 Definition of Defects and Allowances

Defects	Definition	Maximum limits in drained weight (%)
(1) Blemished peas	peas with slight stains or spots.	10 m/m
(2) Seriously blemished peas	peas with spots and colour defects or otherwise blemished to the extent that their aspect or edibility are seriously affected; worm-eaten peas come under this category.	2 m/m
(3) Pea fragments	fractions of peas such as separated or detached cotyledons, crushed cotyledons partially or totally broken, and detached skins.	10 m/m
(4) Extraneous plant material	any fragment of tendril, peduncle, leaf or pod and any other plant material.	0.5 m/m

The total of the defects (1), (2), (3) and (4) should not exceed 15% m/m by weight.

ANNEX G: ON SWEET CORN

G.2 Definition of Defects and Allowances

Sweet corn grains should have a reasonably tender texture, offering some resistance to chewing.

The finished product shall be practically free of fragments of cobs, silks, shucks, grains with an abnormal colour or a malformation, extraneous plant material and other defects not expressly mentioned, within the limits set forth as follows:

Defects	Definition	Tolerances Sweet corn / drained weight	Tolerances Creamed corn / total
(1) Extraneous plant material	COB and HUS K	1 cm ³ /400 g and 7 cm ³ /400 g	1 cm ³ /600 g and 7 cm ³ /600 g
	SILKS	180 mm in 28 g	150 mm in 28 g
(2) Blemished grains	Grains affected by a lesion due to insects or diseases, or presenting an	7 kernels or pieces that are damaged and seriously damaged but not more than 5 may be	–
(3) Torn grains	Grains keeping a piece of cob or hard matter adhering to them.	2% m/m	–
(4) Split grains or empty skins	Entirely open grains.	20% m/m	–

Any unit where the proportion of defects exceeds the tolerances laid down above shall be considered as “defective”.

ANNEX H: ON BABY CORN OR YOUNG CORN

H.1 Definition of Defects and Allowances

H.1.1 Cut Baby Corn

Defect	Maximum limits by number in drained weight
(1) Over/under size	5%
(2) Discolour	5%
(3) Peel	5%
(4) Silk	20 cm of broken silks put together
(5) TOTAL DEFECTS without (4)	15%

H.1.2 Whole Baby Corn

Defects	Definition	Maximum limits by number in drained weight (sample size 1
(1) Discolour		5%
(2) Irregular shape		5%
(3) Young husk and shank		10%
(4) Silk broken from the cob		20 cm of broken silks put together
(5) Brown tip		5%

(6) Broken tip with the diameter larger than 5 mm	broken tip means tips of the cobs that are broken after packing. When these pieces are put together, the cob shape will be formed.	5%
(7) Damage resulting from cutting		10%
(8) Broken pieces	broken pieces means the portions of broken pieces that cannot be put together to form the cob shape.	2%
TOTAL DEFECTS without (4)		25%

DETERMINATION OF WATER CAPACITY OF CONTAINERS (CAC/RM 46-1972)

1. SCOPE

This method applies to glass containers.

2. DEFINITION

The water capacity of a container is the volume of distilled water at 20°C which the sealed container will hold when completely filled.

3. PROCEDURE

- 3.1 Select a container which is undamaged in all respects.
- 3.2 Wash, dry and weigh the empty container.
- 3.3 Fill the container with distilled water at 20°C to the level of the top thereof, and weigh the container thus filled.

4. CALCULATION AND EXPRESSION OF RESULTS

Subtract the weight found in 3.2 from the weight found in 3.3. The difference shall be considered to be the weight of water required to fill the container. Results are expressed as ml of water.

Sampling Plans

The appropriate inspection level is selected as follows:

Inspection level I - Normal Sampling

Inspection level II - Disputes, (Codex referee purposes sample size), enforcement or need for better lot estimate

SAMPLING PLAN 1 (Inspection Level I, AQL = 6.5)

NET WEIGHT IS EQUAL TO OR LESS THAN 1 KG (2.2 LB)		
Lot Size (N)	Sample Size (n)	Acceptance Number (c)
4,800 or less	6	1
4,801 - 24,000	13	2
24,001 - 48,000	21	3
48,001 - 84,000	29	4
84,001 - 144,000	38	5
144,001 - 240,000	48	6
more than 240,000	60	7
NET WEIGHT IS GREATER THAN 1 KG (2.2 LB) BUT NOT MORE THAN 4.5 KG (10 LB)		
Lot Size (N)	Sample Size (n)	Acceptance Number (c)
2,400 or less	6	1
2,401 - 15,000	13	2
15,001 - 24,000	21	3
24,001 - 42,000	29	4
42,001 - 72,000	38	5
72,001 - 120,000	48	6
more than 120,000	60	7
NET WEIGHT GREATER THAN 4.5 KG (10 LB)		
Lot Size (N)	Sample Size (n)	Acceptance Number (c)
600 or less	6	1
601 - 2,000	13	2
2,001 - 7,200	21	3
7,201 - 15,000	29	4
15,001 - 24,000	38	5
24,001 - 42,000	48	6
more than 42,000	60	7

SAMPLING PLAN (Inspection Level II, AQL = 6.5)

NET WEIGHT IS EQUAL TO OR LESS THAN 1 KG (2.2 LB)		
Lot Size (N)	Sample Size (n)	Acceptance Number (c)
4,800 or less	13	2
4,801 - 24,000	21	3
24,001 - 48,000	29	4
48,001 - 84,000	38	5
84,001 - 144,000	48	6
144,001 - 240,000	60	7
more than 240,000	72	8
NET WEIGHT IS GREATER THAN 1 KG (2.2 LB) BUT NOT MORE THAN 4.5 KG (10 LB)		
Lot Size (N)	Sample Size (n)	Acceptance Number (c)
2,400 or less	13	2
2,401 - 15,000	21	3
15,001 - 24,000	29	4
24,001 - 42,000	38	5
42,001 - 72,000	48	6
72,001 - 120,000	60	7
more than 120,000	72	8
NET WEIGHT GREATER THAN 4.5 KG (10 LB)		
Lot Size (N)	Sample Size (n)	Acceptance Number (c)
600 or less	13	2
601 - 2,000	21	3
2,001 - 7,200	29	4
7,201 - 15,000	38	5
15,001 - 24,000	48	6
24,001 - 42,000	60	7
more than 42,000	72	8

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