CODEX ALIMENTARIUS COMMISSION

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World Health Organization

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Agenda Item 4 **CRD 13**

JOINT FAO/WHO FOOD STANDARDS

PROGRAMME CODEX COMMITTEE ON PROCESSED

FRUITS AND VEGETABLES

28th Session
Washington DC, United States of America, 12 – 16 September 2016

Report of the Working Group on the

PROPOSED DRAFT ANNEXES ON QUICK FROZEN VEGETABLES (FOR INCLUSION IN THE STANDARD FOR QUICK FROZEN VEGETABLES (CODEX STAN 320-2015) (STEP 4) AND METHODS OF ANALYSIS FOR QUICK FROZEN VEGETABLES (FOR INCLUSION IN SECTION 11 – METHODS OF ANALYSIS AND SAMPLING OF CODEX STAN 320-2015)

Introduction:

An in-plenary Working group session was held to seek consensus on those unresolved sections within the seven specific Quick frozen Annexes being considered by the 28th CCPFV Session. The Working group took into consideration all the comments submitted on the annexes to the session of the CCPFV and new issues/points raised by members.

Unresolved:

1. Tolerance defects proposed by France: The following options were presented for consideration.
    - The standard/ Annexes will be forwarded for adoption with the pre-existing tolerance tables; and when the Study/evaluation being conducted by France is complete, it will be distributed to CCPFV members. If CCPFV membership supports the new tolerances the relevant sections of the standard will be revised.
    - To evaluate the tolerances in both tables to decide which is most appropriate with modifications if need- without reference to the French study to facilitate .
2. Additives Sections- were not discussed pending the Working group discussion on later in the meeting.
3. Processing Aid- in French Fries
4. Methods of Analysis- Decision on the replacement of the older CRM.

Other Issues: Sampling plans for QFV, and if the AQL of 6.5 applies as in other CCPFV standards

APPENDIX I

ANNEX I: BROCCOLI

In addition to the general provisions applicable to quick frozen vegetables, the following specific provisions apply:

1. DESCRIPTION

1.1 PRODUCT DEFINITION

Quick frozen broccoli is the product prepared from the fresh, clean, sound stalks or shoots of the broccoli plant conforming to the characteristics of the species *Brassica oleracea* L. var. *italica* Plenck (Sprouting Broccoli) which have been sorted, trimmed, washed and sufficiently blanched to ensure adequate stability of colour and flavour during normal marketing cycles.

1.2 PRESENTATION

1.2.1 Styles

(a) ***Spears*** - The head and adjoining portion of the stem, with or without small tender attached leaves, ranging in length from more than 7 cm to 16 cm. The spears may be split longitudinally. Within each sample unit not more than 20% by count fall outside the designated length.

(b) ***Florets*** - The head and adjoining portion of the stem, with or without small tender attached leaves ranging in length from 15 mm to 80mm with sufficient attached stem to maintain a compact head. The florets may be split longitudinally. Within each sample unit not more than 20% by count fall outside the designated length.

(c) ***Cut spears*** – Spears, which have been cut into portions and which may be irregular in shape. Pieces from 1.5 cm to 5 cm in the longest dimension. Leaf material may be present but shall not exceed 35% m/m and head material shall not be less than 15% m/m.

(d) ***Chopped*** - Broccoli finely cut into pieces less than 1.5 cm in the longest dimension. Leaf material may be present but shall not exceed 35% m/m and head material shall not be less than 15% m/m.

1.2.2 Sizing

Quick frozen broccoli florets may be presented sized or un-sized.

When sized, a size name designation and size parameter in mm should be indicated on the package. The package shall contain no less than 80.0% by weight of the declared size.

Table 1: Sizing

Size Designation	Diameter size range of the head of the florets (mm)
(a) Small florets	12 – 40 mm
(b) Florets	> 40 – 80 mm

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 COMPOSITION

2.1.1 Basic Ingredients

Broccoli as defined in Section 1.1.

2.1.2 Optional Ingredients

(a) Sugars as defined in the Standard for Sugars (CODEX STAN 212-1999);

(b) Salt (sodium chloride) as defined in the Standard for Food Grade Salt (CODEX STAN 150-1985);

(c) Edible fats and oils as defined in the Standard for Named Vegetable Oils(CODEX STAN 210-1999), and for named animal fats (Codex –STAN 211-1999)

(d) Spices and culinary herbs[1]

(e) Named Sauces

2.2. QUALITY FACTORS

2.2.1 General Requirements

Quick frozen broccoli shall be of reasonably uniform dark green to light green depending on the varieties. The inflorescences shall be firm, compact of fine/ close grained with floral buttons completely closed.

With respect to visual or other defects with a tolerance, quick frozen broccoli shall be reasonably free from:

(a) an excessive amount of leaf material, particularly large coarse leaves;

(b) detached fragments and loose leaves (only for spears and florets);

(c) extraneous vegetable material;

(d) yellow or brown coloured florets;

(e) damage due to mechanical, pathological, or insect injury;

(f) poorly trimmed units (spears and florets);

(g) flowered or poorly developed units;

(h) fibrous or woody units.

2.2.2 Definition of Visual Defects

(a) ***Extraneous vegetable material (E.V.M.)*** - means leaf, stem, or similar harmless vegetable material other than from the broccoli plant.

(b) ***Detached leaves*** (for spears and florets) - mean broccoli leaves and pieces thereof not attached to a unit.

(c) ***Fragments*** (for spears and florets) - means pieces less than 20 mm in length for spears and weighing less than 5 g for florets.

(d) ***Blemished*** - A unit or product, which is stained, spotted**,** affected by discolouration or disease or insect injury.

(i) Minor - Slightly affecting the appearance or eating quality.

(ii) Major - Materially affecting the appearance or eating quality.

(iii) Serious - Seriously affecting the appearance or objectionably affecting the eating quality to such an extent that customarily it would be discarded under normal culinary preparation.

(e) ***Mechanical damage*** (for spears and florets) - means a unit bearing the general configuration of a spear or floret, but from which more than 50% of the buds have become detached, or otherwise mechanically damaged so as to materially affect the appearance of the product.

(f) ***Poorly trimmed*** (for spears and florets) - means units in which the appearance is seriously affected by attached coarse leaves or pieces thereof, or ragged removal of leaves, or small side shoots, or poor cutting of the stem.

[1] where available, in accordance with the relevant Codex Standard

(g) ***Over mature or poorly developed*** - means individual buds are in the flowered stage and with respect to spears and florets branching bud clusters which comprise the head are spread so as to seriously affect the appearance of the unit, or the bud clusters are of such advanced maturity that individual buds and supporting stems from loosely structured clusters.

(h) ***Fibrous*** - means tough fibre that is normally developed near the outside portion of the broccoli stem; such units are tough but still edible.

(i) ***Woody*** - means tough fibre that is normally developed near the outside portion of the broccoli stem, such units are extremely tough and highly objectionable.

2.2.3 Standard Sample Size

The standard sample size for presentation (styles) shall be 300 g.

2.2.4 Defects and Allowances

In addition, the following sample size applies for visual defects:

Table 2: Sample Size

Styles	Sample Size for Visual Defects
(a) Spears, florets	300 g for detached fragments, loose leaves, and E.V.M.; for other defects 25 units
(b) Cut spears and other styles	300 g
(c) Chopped	100 g

Table 3: Classification of Defects by Count for Spears and Florets

Visual Defects	Unit of Measurement	Defect Categories			
		Minor	Major	Serious	Total
(a) E.V.M.	Each piece		2		
(b) Detached leaves	Each 5 g	1			
(c) Fragments					
(i) Spears	Each 20 mm	1			
(ii) Florets	Each 5 g	1			
(d) Blemished	Each unit				
(i) Minor		1			
(ii) Major			2		
(iii) Serious				4	
(e) Mechanical damage	Each unit		1		
(f) Poorly trimmed	Each unit	1			
(g) Over-mature/poorly	Each unit				
(h) Fibrous	Each unit		2		
(i) Woody	Each unit		2		
Total Allowable Points		25	12	4	25

For tolerance based on the standard sample sizes indicated in Section 2.2.3, visual defects shall be assigned points in accordance with the appropriate Table in this Section. The maximum number of defects permitted is the Total Allowable Points rating indicated for the respective categories Minor, Major and Serious or the Combined Total of the foregoing categories.

Table 4 – Chopped

Visual Defects	Unit of Measurement	Defect Categories			
		Minor	Major	Serious	Total
(a) E.V.M.	Each piece		2		
(b) Blemished	Each piece				
(i) Minor		1			
(ii) Major			2		
(iii) Serious				4	
(c) Over-mature / poorly developed	Each 10 g for cut		2		
	Each 2 g for chopped		2		
(d) Fibrous	Each 2 g		2		
(e) Woody	Each 2 g t			4	
Total Allowable Points		25	12	4	25

2.3 DEFINITION OF "DEFECTIVES"

Any standard sample unit, which fails to comply with the quality requirements, as set out in Sections 1.2.1, 2.2.1 and 2.2.4 shall be regarded as a "defective".

2.4 LOT ACCEPTANCE

A lot will be considered acceptable when the number of "defectives" as defined in Section 2.2 does not exceed the acceptance number (c) for the appropriate sample plan with an AQL of 6.5.

In applying the acceptance procedure each "defective", as indicated in Sections 2.2.1 and 2.2.4, is treated individually for the respective categories.

3. FOOD ADDITIVES

None permitted**.**

4 LABELLING

4.1 NAME OF THE PRODUCT

The name of the product shall include the designation "Broccoli" and the size or size designation when the broccoli is sized.

ANNEX II: BRUSSELS SPROUTS

In addition to the general provisions applicable to quick frozen vegetables,
the following specific provisions apply:

1. DESCRIPTION

1.1 PRODUCT DEFINITION

Quick frozen Brussels sprouts are the product prepared from fresh, clean, sound, whole auxiliary buds of the plant conforming to the characteristics of *Brassica oleracea* L. var. *gammier* Gemmifera (DC) Schulz – which buds are trimmed, sorted, washed and sufficiently blanched to ensure adequate stability of colour and flavour during normal marketing cycles.

1.2 PRESENTATION

1.2.1 Sizing

(a) Quick frozen Brussels sprouts may be presented sized or unsized.

(b) Whether sized or unsized, the amount of frozen sprouts passing a square holed sieve of 12 mm, shall not exceed 5% by number.

(c) If quick frozen Brussels sprouts are presented as size graded, they shall conform to a, size name designation and size parameter in mm should be indicated on the package when measured in the frozen condition. The following system of size designations and diameters is a guide. Other designations including mixtures of sizes are allowed.

Table 1: Size Designation

Size Designation	Diameter of sprouts in mm using a square hole sieve or caliper
(a) Very small	12 – 22 mm
(b) Small	22 – 26 mm
(c) Medium	26 – 36 mm
(d) Large	over 36 mm

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 COMPOSITION

2.1.1 Basic Ingredients

Brussels sprouts as defined in Section 1.

2.1.2 Optional Ingredients

(a) Sugars as defined in the Standard for Sugars (CODEX STAN 212-1999);

(b) Salt (sodium chloride) as defined in the Standard for Food Grade Salt (CODEX STAN 150-1985);

(c) Edible fats and oils as defined in the Standard for Named Vegetable Oils(CODEX STAN 210-1999), and for named animal fats (Codex –STAN 211-1999)

(d) Spices and culinary herbs[2]

(e) Named Sauces

2.2 QUALITY FACTORS

2.2.1 General Requirements

With respect to visual defects or other defects subject to a tolerance, quick frozen Brussels sprouts shall

[2] where available, in accordance with the relevant Codex Standard

be reasonably free from:

(a) extraneous vegetable material (E.V.M.);

(b) loosely structured buds;

(c) poorly trimmed or mechanically damaged units;

(d) damage by insects or disease;

(e) loose leaves.

2.2.2 Definition of Visual Defects

(a) ***Extraneous vegetable material (E.V.M.)***: Extraneous material from the Brussels sprouts plant including stem and leaf, but excluding bud leaves and fragments thereof; harmless vegetable material from other plants.

(b) ***Yellow colour***: More than 50% of the outer surface of a sprout yellow in colour due to loss of outer leaves resulting either from over trimming or mechanical damage.

(c) ***Loosely structured***: Sprout not compact, having loosely packed or open leaves. A sprout in which the leaves form a rosette appearance.

(d) ***Perforated leaves*** (by insects): A sprout with one or more surface perforations larger than 6 mm in diameter, showing scar tissue at the edge of the perforation(s).

(e) ***Decayed***: A sprout which shows significant internal or external decomposition.

(f) ***Seriously blemished***: A sprout which is stained, spotted, discoloured or otherwise blemished, covering an aggregate area greater than that of a circle 15 mm in diameter, in such a way as to detract seriously from its appearance/eating quality, and to such an extent that it would be discarded under normal culinary preparation.

(g) ***Blemished***: A sprout which is stained, spotted, discoloured, or otherwise blemished to the extent that the aggregate area affected is greater than the area of a circle 6 mm in diameter, or in such a way as to detract materially but not seriously from its appearance. Sprouts with slight blemishes may be ignored.

(h) ***Poorly trimmed or mechanically damaged unit***: A unit in which: the stem end is very ragged leaving a heel extending more than 10 mm beyond the point of attachment of the lowest outer leaves;

(i) 4 or more outer leaves have been damaged such that only the petioles remain attached to the stem;

(ii) the stem extends more than 10 mm below the point of attachment of the lowest outer leaves;

(iii) the appearance is damaged to an extent that the sprout is lacerated, can be separated easily into two pieces, or more than 25% of its volume has been removed.

(i) ***Loose leaf***: Leaf or leaf fragments detached from the bud.

2.2.3 Standard Sample Size

2.2.3.1 ***Presentation (styles and sizing)***

The standard sample size shall be 1 kg.

2.2.3.2 ***Visual Defects***

The standard sample size shall be 1 kg for the assessment of E.V.M. and loose leaf, and 100 sprouts for the assessment of other visual defects.

2.2.4 Defects and Allowances

2.2.4.1 ***Styles – "Free Flowing"***

When the product is presented as "free flowing" a tolerance of 10% m/m shall be allowed for pieces which are stuck together to such an extent that they cannot easily be separated in the frozen state.

2.2.4.2 ***Sizing***

If represented as size graded, of the sprouts 12 mm or larger, a minimum of 80% by number shall be of the declared size and a maximum of the following percentages by number of other sizes:

Table 2: Sizing

Size Designation	**Very Small**	**Small**	**Medium**	**Large**
(a) Max% 12 – 22 mm	-	20	20	5
(b) Max% 22 26 mm	20	-	20	-
(c) Max% 26– 36 mm	5	20	-	20
(d) Max% over 36 mm	0		20	-
Total Max%	20	20	20	20

2.2.4.3 ***Visual Defects***

For tolerances based on the standard sample size indicated in Section 2.2.3.2, visual defects shall be assigned points in accordance with the Table in this Section. The maximum number of defects permitted is the Total Allowable Points rating indicated for the respective categories 1, 2 and 3 or the Combined Total of the foregoing categories.

Table 3: Defects Allowances

Defect	**Unit of Measurement**	**Defect Categories**			**Total**
		1	**2**	**3**	
(a) E.V.M.	Each piece	2			
(b) Loosely structured	Each sprout		2		
(c) Perforated leaves	Each sprout		1		
(d) Decayed	Each sprout			4	
(e) Seriously blemished	Each sprout			2	
(f) Blemished	Each sprout		2		
(g) Poorly trimmed or mechanically damaged	Each sprout		1		
(h) Loose leaf	Each 1% m/m	1			
Maximum Total Allowable Points		**10**	**45**	**10**	**55**

Maximum percentage by count of (b) Yellow sprouts: 25

2.3 CLASSIFICATION OF "DEFECTIVES"

Any standard sample unit which fails to comply with the quality requirements, as set out in Sections 2.2.1 and 2.2.4 shall be regarded as a "defective".

2.4 LOT ACCEPTANCE

A lot will be considered acceptable when the number of "defectives" as defined in Section 2.3 does not exceed the acceptance number © for the appropriate sample plan with an AQL of 6.5.

In applying the acceptance procedure each "defective", as indicated in Sections 2.2.1 and 2.2.4.3, is treated individually for the respective characteristics.

3. FOOD ADDITIVES

None permitted.

4. LABELLING

4.1 NAME OF THE PRODUCT

The name of the product shall include the designation "Brussels sprouts".

4.2 SIZE DESIGNATION

4.2.1 If a term designating the size of the Brussels sprouts is used:

(a) it shall be supported by the sieve size in mm; and/or

(b) the words "very small", "small", "medium" or "large" as appropriate; and/or

(c) by a size representation on the label of the size range to which the Brussels sprouts predominantly conform; and/or

(d) the customary method of declaring size in the country in which the product is sold.

ANNEX III: CAULIFLOWER

In addition to the general provisions applicable to quick frozen vegetables,
the following specific provisions apply:

1. DESCRIPTION

1.1 PRODUCT DEFINITION

Quick frozen cauliflower is the product prepared from fresh, clean, sound heads of the cauliflower plant conforming to the characteristics of the species *Brassica oleracea* L. var. *botrytis* L., which heads may be trimmed and separated into parts, and which are washed and sufficiently blanched to ensure stability of colour and 14lavor during normal marketing cycles.

1.2 PRESENTATION

1.2.1 Style

(a) ***Whole*** - The whole, intact head, which is trimmed at the base. Small tender modified leaves may be present or attached to the unit;

(b) ***Split*** - The whole head, cut vertically into two or more sections which may have attached small, tender, modified leaves;

(c) ***Florets***[7]

- Segments of the head, which may have a portion of the attached, measuring at least 12 mm across the top in the greatest dimension. A maximum tolerance of 20% m/m is permitted for units in which the greatest dimension across the floret is more than 5 mm and less than 12 mm. Small, tender modified leaves may be present or attached to the units.

1.2.2 Sizing

1.2.2.1 Quick frozen cauliflower florets may be presented sized or un-sized. When sized, Size is determined by the maximum diameter of the equatorial section.

1.2.2.2 If presented as size graded they shall conform to the following specifications.

(a) ***Large florets*** - Segments of head measuring at least 30 mm across the top in the greatest dimension and of which a portion of secondary stem may be attached. Small tender modified leaves may be present or attached to the unit.

(b) ***Small florets*** - Segments of head measuring at least 12 mm but less than 30 mm across the top in the greatest dimension and to which a small portion of secondary stem may be attached. Small tender modified leaves may be present or attached to the unit.

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 COMPOSITION

2.1.1 Basic Ingredients

Cauliflower as defined in Section 1.

2.1.2 Optional Ingredients

(a) Sugars as defined in the Standard for Sugars (CODEX STAN 212-1999);

(b) Salt (sodium chloride) as defined in the Standard for Food Grade Salt (CODEX STAN 150-1985);

(c) Edible fats and oils as defined in the Standard for Named Vegetable Oils(CODEX STAN 210-1999), and for named animal fats (Codex –STAN 211-1999)

(d) Spices and culinary herbs[3]

(e) Named Sauces

[7] The term “clusters” is used as an alternative to “florets” in some English speaking countries.

2.2 QUALITY FACTORS

2.2.1 General Requirements

Quick frozen cauliflower shall be of reasonably uniform white to dark cream colour over the tops of the units which may be slightly dull and have a tinge of green, yellow or pink. The inflorescences shall be firm, compact, of fine / close grained.

The stem or branch portions may be light green or have a tinge of blue; and with respect to visual defects or other defects subject to a tolerance shall be reasonably:

(a) free from discoloured areas confined essentially to the surface;

(b) free from damaged or blemished areas;

(c) free from fibrous stems;

(d) free from poorly trimmed units;

(e) free from fragments;

[3] where available, in accordance with the relevant Codex Standard

(f) compact and reasonably well-developed;

(g) free from coarse green leaves;

(h) free from loose stems (for floret styles).

2.2.2 Definition of Visual Defects

Table 1 – Definition of Visual Defects

(a) ***Discolouration***	(i) Light - The discolouration disappears almost entirely upon cooking.
	(ii) Dark - The discolouration does not disappear upon cooking.
(b) ***Blemished***	(i) Minor - The appearance of the unit is only slightly affected.
	(ii) Major - The appearance of the unit is materially affected.
	(iii) Serious - The appearance of the unit is objectionably affected to such an extent that it would customarily be discarded under normal culinary preparation.
(c) ***Mechanically damaged***	(i) Major - A unit in which more than 50% of the curd has been mechanically damaged or is missing (for split and floret styles).
	(ii) Major - A unit in which more than 25% of the curd has been mechanically damaged or is missing (for whole style).
(d) ***Fibrous***	(i) Major - A unit which possesses tough fibres that are quite noticeable and materially affect the eating quality.
	(ii) Serious - A unit which possesses tough fibres that are objectionable and of such nature that it would be customarily discarded.
(e) ***Poorly trimmed*** - A unit which has deep-knife gouges or a ragged appearance.	
(f) ***Leaves*** - Coarse green leaves or parts thereof whether or not attached to the unit.	
(g) ***Fragments*** - Portions of the floret 5 mm or less across the greatest dimension.	
(h) ***Not compact*** - A unit in which the florets are spreading, or the flowerhead has a “ricey” appearance or the flowerhead is very soft or mushy.	
(i) ***Loose stem*** - Each piece of stem exceeding 2.5 cm in length detached from a cauliflower unit.	

2.2.3 Standard Sample Size

The standard sample size for presentation[8] shall be 500 g having a minimum of 50 florets.

2.2.4 Defects and Allowances

When cauliflower is presented as sized, a tolerance of 20% by weight is permitted as not conforming to the size indicated on the package.

For tolerances based on the standard sample size indicated in Section 2.2.3, visual defects shall be assigned points in accordance with the Tables 2 and 3. The maximum number of defects permitted is the Total Allowable Points rating indicated for the respective categories Minor, Major and Serious or the Combined Total of the foregoing categories.

Table 2 – Whole Style

Defect		Unit of Measurement	Defect Categories			
			Minor	Major	Serious	Total
(a) Discolouration	(i) Light	Each area or combined area of 8 cm²	1			
	(ii) Dark	Each area or combined area of 4 cm²		2		
(b) Blemished	(i) Minor	Each head	1			
	(ii) Major			2		
	(iii) Serious				4	
(c) Mechanically damaged	(i) Major	Each head		2		
(d) Fibrous	(i) Major	Each head		2		
	(ii) Serious				4	
(e) Poorly trimmed leaves		Each head		2		
		Each 2 cm²		2		
(f) Not compact		Each area or combined area of 12 cm²		2		
Total Allowable Points			**10**	**6**	**4**	**10**

[8] For whole style, the minimum number of heads weighing in total at least 500 g.

Table 3 Split, Florets and Other Styles

Defect		Unit of Measurement	Defect Categories			
			Minor	Major	Serious	Total
(a) Discolouration	(i) Light	Each area or combined area of 8 cm²	1			
	(ii) Dark	Each area or combined area of 4 cm²		2		
(b) Blemished	(i) Minor	Each unit	1			
	(ii) Major			2		
	(iii) Serious				4	
(c) Mechanically damaged	(i) Major	Each unit		2		
(d) Fibrous	(i) Major	Each unit		2		
	(ii) Serious				4	
(e) Poorly trimmed leaves		Each unit	1			
		Each 2 cm²		2		
(f) Fragments		Each 3% m/m		2		
(g) Not compact		Each area or combined area of 12 cm²		2		
(h) Loose stem		Each piece	1			
Total Allowable Points			**25**	**16**	**4**	**25**

[PROPOSAL BY FRANCE

DEFECTS	FLORETS AND S		LORETS
	PERCENTAGE BY NUMBER	PERCENTAGE BY WEIGHT	PERCENTAGE BY WEIGHT
(a)**Discolouration** (i) Lig ht (ii)	**8** **7**		**15**
(b) Blemished (i) Minor (ii) Major	**4** **2**		**6**
(c) (e) Mechanically damaged and poorly trimmed		**4**	**4**
(d) Fibrous	**-**	**-**	**-**
(g) Fragments		**10**	
(h) Not compact	**5**		
(f) (I) Loose stem and leaves		**3**	]

2.3 CLASSIFICATION OF "DEFECTIVES"

Any standard sample unit which fails to comply with the quality requirements, as set out in Sections 2.2.1 and 2.2.4 shall be regarded as a "defective".

2.4 LOT ACCEPTANCE

A lot will be considered acceptable when the number of "defectives" as defined in Section 2.2 does not exceed the acceptance number (c) for the appropriate sample plan with an AQL of 6.5.

3. FOOD ADDITIVES

4. LABELLING

4.1 NAME OF THE PRODUCT

4.1.1 The name of the product shall include the designation "cauliflower".

4.1.2 If a term designating the size of the florets is used:

(a) the words "large florets", "medium florets", "small florets" or "cut florets" as appropriate; and/or

(b) by a correct representation on the label of the size range to which the florets predominantly conform; and/or;

(c) the customary method of declaring size in the country of retail sale.

ANNEX IV: FRENCH FRIED POTATOES

In addition to the general provisions applicable to quick frozen vegetables, the following specific provisions apply:

1. DESCRIPTION

1.1 PRODUCT DEFINITION

Quick frozen French fried potatoes are the product prepared from clean, sufficiently developed, sound tubers of the potato plant conforming to the characteristics of the species *Solanum tuberosum* L, *Solanum Andigena* L and rhizomes sweet potato plant conforming to the characteristics of the species of *Ipomoea batatas.* They shall have been sorted, washed, peeled or unpeeled, cut into various shapes and treated as necessary to achieve satisfactory colour and fried or pre-cooked in edible oil, fat, or water blanched. The treatment, precooking and frying operations shall be sufficient to ensure adequate stability of colour and flavour during normal marketing cycles. Following the frying or precooking operation the product is quickly cooled and quick frozen. Products that have not been fried or precooked are not covered by this annex.

1.2 PRESENTATION

1.2.1 Styles

The styles of the product shall be determined by the nature of the surface and the nature of the cross section.

1.2.1.1 *Nature of the Surface*

The product may be presented in any one of the following styles including:

(a) Straight cut - Strips of potato with practically parallel sides and with smooth surfaces;

(b) Crinkle cut - Strips of potato with practically parallel sides and in which two or more sides have a corrugated surface;

1.2.1.2 *Dimensions of the cross section*

The cross sectional dimensions of strips of quick frozen French fried potatoes that have been cut on all four sides (Styles (a) and (b) above) shall not be less than 4 mm when measured in the frozen condition. The quick frozen French fried potatoes within each pack shall be of similar cross sectional dimensions.

The product may be identified:

(a) by the approximate dimensions of the cross sections or by reference to the following system for designations:

Table 1. Size designations

Designation	Dimension in mm across the largest cut surface
(a) Shoestring	4 - 8
(b) Medium	> 8 - 12
(c) Thick cut	> 12 - 16
(d) Extra large	> 16

Uniformity

Uniformity may be expressed as:

(a) A tolerance of 10% by length of non-conforming styles units applies, when specific lengths are not indicated

(b) As a percentage by count (based on the composition of lengths) in accordance with the following table when specific lengths are indicated

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 COMPOSITION

2.1.1 Basic Ingredients

(a) Potatoes as defined in Section 1.1;

(b) Edible fats and oils as defined in the Standard for Named Vegetable Oils (CODEX STAN 210-1999), and for named animal fats (Codex –STAN 211-1999)

2.1.2 Optional Ingredients

(a) Sugars as defined in the Standard for Sugars (CODEX STAN 212-1999);

(b) Salt (sodium chloride) as defined in the Standard for Food Grade Salt (CODEX STAN 150-1985);

(f) Spices and culinary herbs[4]

(c) Batters.

2.2 QUALITY FACTORS

2.2.1 General Requirements

Quick frozen French fried potatoes shall:

(a) be free from any foreign flavours and odours;

(b) be clean, sound and practically free from foreign matter;

(c) have a reasonably uniform colour;

and with respect to visual defects subject to a tolerance shall be:

(a) without excessive external defects such as blemishes, eyes and discolouration;

(b) without excessive sorting effects, such as slivers, small pieces and scrap;

(c) reasonably free from frying defects, such as burnt parts.

When prepared in accordance with the manufacturer's instructions quick frozen French fried potatoes shall:

(a) have a reasonably uniform desired colour;

(b) have a texture characteristic of the product and be neither excessively hard nor excessively soft or soggy.

2.2.2 Analytical Requirements

2.2.2.1 Moisture - the maximum moisture content of the whole product in the styles shoestring, medium and thick cut shall be 76% m/m; and in extra-large and other styles 78% m/m.

2.2.2.2 The fat or oil extracted from the product shall have a free fatty acid content of not more than 1.5% { acid value 3 mg koh /gram of} oil m/m measured as oleic acid or an equivalent fatty acid value based on the predominant fatty acid in the fat or oil

[4] where available, in accordance with the relevant Codex Standard

2.2.2.2 Definition of Visual Defects

External defects: are blemishes or discolouration (either internally or on the surface) due to exposure to light, mechanical, pathological or pest agents, eye material or peeling remnants.
(a) Minor defect - A unit affected by disease, dark or intense discolouration, eye material, or dark peel covering an area or a circle greater than 3 mm but less than 7 mm in diameter; pale brown peel or light discolouration of any area greater than 3 mm in diameter.
(b) Major defect - A unit affected by disease, dark or intense discolouration, eye material, or dark peeling covering an area or a circle greater than 7 mm but less than 12 mm in diameter.
(c) Serious defect - A unit affected by disease, dark or intense discolouration, eye material, or dark peel covering an area or a circle of 12 mm in diameter or more.
Note: "Slight" external defects which in either area or intensity fall below the definition shown for minor defects shall be ignored.
Sorting Defects
(a) Sliver - A very thin unit (generally an edge piece) which will pass through a slot the width of which is 50% of the minimum dimension of the nominal or normal size.
(b) Small piece - Any unit less than 25 mm in length.
(c) Scrap - Potato material of irregular form not conforming to the general conformation of French fried potatoes.
Frying Defects
Burnt pieces - Any unit which is dark brown to black and hard due to gross over frying.

2.2.4 Standard Sample Size

The standard sample size shall be 1 kg.

2.2.5 Tolerances for Visual Defects

For tolerances based on the standard sample size as specified in Section 2.2.4 the visual external defects are classified as "minor" or "major" or "serious". The tolerances in respect of external defects are dependent on the cross section of the French fried potatoes.

To be acceptable, the standard samples shall not contain units in excess of the numbers shown for the respective categories, including total, in Table 2.

Table 2: Tolerances for External Defects

Defect category	Number of units affected cross section of strips	
	4 - 16 mm	over 16 mm
(a) Serious	7	3
(b) Serious + major	21	9
Total (serious + major + minor)	60	27

The tolerances for the other defects (not depending on cross section) [depending on the style] are:

Table 3. Sorting defects (Grades)

Slivers	maximum 12% m/m
Small Pieces and Scraps	maximum 6% m/m
Total Sorting Defects	maximum 12% m/m
Frying Defects	maximum 0.5% m/m

2.3 DEFINITION OF "DEFECTIVE"

Any sample unit taken shall be regarded as a "defective" for the respective characteristics when it:

(a) fails to meet any of the requirements given in Section 2.1;

(b) fails to meet any of the general requirements given in Section 2.2.1;

(c) exceeds the tolerances for visual defects in any one or more respective defect categories in Section 2.2.5.

2.4 LOT ACCEPTANCE FOR COMPOSITION AND QUALITY FACTORS

A lot will be considered acceptable with respect to composition and quality factors when the number of "defectives" as defined in Section 2.2 does not exceed the acceptance number (c) of an appropriate sampling plan with an AQL of 6.5.

In applying the acceptance procedure each "defective" (as defined in section 2.3(a) to (c)) is treated individually for the respective characteristics.

2.5 DEFINITION OF "DEFECTIVE" FOR ANALYTICAL REQUIREMENTS

See relevant Codex texts on methods of analysis and sampling.

2.6 LOT ACCEPTANCE FOR ANALYTICAL REQUIREMENTS

See relevant Codex texts on methods of analysis and sampling.

3. FOOD ADDITIVES

3.1 Sequestrants used in accordance with Tables 1 and 2 of the General Standard for Food Additives (CODEX STAN192-1995) in Food Category 0.4.2.2.1 Frozen Vegetables (including mushrooms and fungi, roots and tubers, pulses and legumes, and aloe vera), seaweeds, and nuts and seeds, are acceptable for use in food conforming to this Standard.

3.2 In addition, the following food additives apply to the products covered by the Standard:

INS No	Food Additive	Maximum Level
338: 339 (i)-(iii); 340 (i) – (111)- 341(i)- (iii); 342(i),(ii); 343(i)-(iii); 450(i)-(iii),(v)-(vii); 451(i), (ii); 452(i)-(v); 330 296 300	Phosphates Citric acid Malic acid DL**; Ascorbic acid L*** [~~Food Enzymes – asparaginase~~ **Sodium acid** **Pyrophosphate-** **Sequestering agents** **Coloring agents (for discussion points)** **Emulsifying agents** ~~**Gelling agents**~~ ~~**Stabilizing agents**~~ ~~**Thickening agents**~~ ~~**Sweeteners]**~~	100 [2200] mg/k singly or in combination (phosphates expressed*as P_2O_5) GMP GMP GMP

4. [PROCESSING AIDS] Status pending discussion in WG

Only processing aids listed below may be used in products covered by this standard and shall comply with the Guidelines on Substances Used as Processing Aids (CAC/GL 75-2010).

Processing Aids

INS	Processing Aid	Function
221	Sodium sulfite	For use in blanching or cooling water.
223	Sodium bisulfite	
228	Potassium bisulfite	
224	Potassium metasulfite	
225	Potassium sulfite *	
330	Citric acid	
524	Sodium hydroxide	
525	Potassium hydroxide	
900a	Polydimethylsiloxane **	
9000	Dimethylpolysiloxane	Antifoaming agents
	Asparaginase	To limit acrylamide formation in the final product

4.1 CARRY-OVER PRINCIPLE

Section 4.1 of the General Standard for Food Additives (CODEX STAN 192-1995) shall apply.

5. LABELLING

5.1 NAME OF THE PRODUCT

5.1.1 The name of the product shall be "French Fried Potatoes" or the equivalent designation used in the country in which the product is intended to be sold. Where the sweet potato variety is used, the name of the product shall be "French Fried Sweet Potatoes".

5.1.2 In addition, there shall appear on the label a designation of the style as appropriate, for example "straight cut" or "crinkle cut" and there may also appear an indication of the approximate dimensions of the cross section or the appropriate designation, i.e. "Shoestring", "medium", "thick cut" or "extra-large".

5.1.3 If the product is produced in accordance with Section 1.2.1.1 and 2.2.2 (d). The label shall contain in close proximity to the words "French Fried Potatoes" such additional words or phrases that will avoid misleading or confusing the consumer.

5.2 ADDITIONAL REQUIREMENTS

The packages shall bear clear directions for keeping from the time they are purchased from the retailer to the time of their use, as well as directions for cooking.

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[1] "Frozen": This term is used as an alternative to "quick frozen" in some English speaking countries.

ANNEX V: GREEN BEANS AND WAX BEANS

In addition to the general provisions applicable to quick frozen vegetables, the following specific provisions apply:

1. DESCRIPTION

1.1 PRODUCT DEFINITION

Quick frozen green beans is the product prepared from fresh, clean, sound, succulent pods of the plants conforming to the characteristics of suitable varieties of the species *Phaseolus vulgaris* L. or *Phaseolus coccineus* L. Strings (if any), stems, and stem ends are removed, and the pods washed and sufficiently blanched to ensure adequate stability of colour and flavour during normal marketing cycles.

1.2 PRESENTATION

1.2.1 Type

Green beans or wax beans having distinct varietal differences with regard to shape may be designated as:

(a) ***Round*** - Pods having a width not greater than 1½ times the thickness.

(b) ***Flat*** - Pods having a width greater than 1½ times the thickness.

1.2.2 Styles

Quick frozen green beans and quick frozen wax beans shall be presented in the following styles:

(a) ***Whole***: Whole pods of any length.

(b) ***Cut***: Transversely cut pods in which 70% or more by count of the units are at least 20 mm long but not longer than 65 mm.

(c) ***Short cut***: Transversely cut pods in which 70% or more by count of the units are more than 10 mm but less than 20 mm long.

(d) ***Diagonal cut***: pods cut approximately 45^{o} to the longitudinal axis in which 70% by count of the units are more than 6 mm long.

(e) ***Sliced/French Cut***: pods sliced lengthwise or at an angle up to approximately 45^{o} to the longitudinal axis, with a maximum thickness of 7 mm.

1.2.3 Colour [for wax beans only]

The predominant colour of the pods of wax beans excluding the seeds and immediate surrounding tissue shall be yellow, or yellow with a green tinge.

1.2.4 Sizing

(a) Quick frozen whole and cut green beans and wax beans may be presented sized or unsized.

(b) If round type beans are presented as size graded on diameter, they shall conform when measured in the thawed conditions, to the following size designation for the size names. However, other size designations may be used, and should be labelled accordingly.

Table 1: Size designation

Size Designations	Bean pod diameter in mm measured by passing through parallel bars
(a) Extra small	up to 6.5
(b) Very small	up to 8
(c) Small	up to 9.5
(d) Medium	up to 11
(e) Large	over 11

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 COMPOSITION

2.1.1 Basic Ingredients

Green Beans and Wax Beans as defined in Section 1.

4.1.3 Optional Ingredients

(a) Sugars as defined in the Standard for Sugars (CODEX STAN 212-1999);

(b) Salt (sodium chloride) as defined in the Standard for Food Grade Salt (CODEX STAN 150-1985);

(c) Edible fats and oils as defined in the Standard for Named Vegetable Oils(CODEX STAN 210-1999), and for named animal fats (Codex –STAN 211-1999)

(d) Spices and culinary herbs[5]

(e) Named Sauces

2.2 QUALITY FACTORS

2.2.1 General Requirements

With regard to visual defects subject to a tolerance, quick frozen beans shall be:

(a) without excessive small pieces;

(b) normally developed (for whole beans);

(c) reasonably free from extraneous vegetable material (E.V.M.);

(d) reasonably free from stem ends;

(e) reasonably free from damage by insects or disease;

(f) reasonably free from mechanically damaged units;

(g) reasonably free from tough strings and fibrous units.

2.2.2 Definition of Visual Defects

(a) ***Extraneous Vegetable Material***: Vegetable material from the bean plant, other than pod, such as leaf or vine, but excluding stem ends; other harmless vegetable material, not purposely included as an ingredient. For the purpose of assessment, E.V.M. comprising bean leaf material will be differentiated from other E.V.M.

(b) ***Stem end***: A piece of the immediate stem which attaches the pod to the vine stem whether still attached to the unit or loose in the product.

[5] where available, in accordance with the relevant Codex Standard

(c) ***Major blemish***: Each piece blemished due to insect or pathological damage affecting an area greater than a 6 mm diameter circle, 2 mm to 4 mm for the "extra small" size or blemished by other means to a degree which seriously detracts from its appearance.

(d) ***Minor blemish***: Each piece blemished due to insect or pathological damage affecting an area greater than a 3 mm diameter circle, 2 mm to 4 mm for the "extra small" size or blemished by other means to a degree which seriously detracts from its appearance.

(e) ***Mechanical damage*** (whole and cut styles): a unit that is broken or split into two parts, crushed, or has very ragged edges to an extent that the appearance is seriously affected.

(f) ***Undeveloped*** (whole style only): Each unit which measures less than 3 mm at its widest point.

(g) ***Tough strings***: Tough fibre which will support a weight of 250 g for 5 seconds or more when tested in accordance with the procedure as given in CAC/RM 39-1970.

(h) ***Fibrous unit***: Each piece having parchment - like material formed during the ripening of the pod, to the extent that the eating quality is seriously affected.

(i) **Edible fibre** means fibre developed in the wall of the bean pod that, after cooking, is noticeable upon chewing, but can be consumed with the rest of the bean material without objection.

(ii) **Inedible fibre** means fibre developed in the wall of the bean pod that, after cooking, is objectionable upon chewing and tends to separate from the rest of the bean material.

(iii) **Small pieces** (cut and sliced styles): bean pieces less than 10 mm in length including loose seeds and pieces of seeds; - (whole style) bean pieces less than 20 mm in length including loose seeds and pieces of seeds.

2.2.3 Standard Sample Size

2.2.3.1 ***Presentation***

(a) The standard sample size for sizing shall be 1 kg.

2.2.3.2 Visual Defects

The standard sample size is 1 kg for E.V.M. and stem ends, and 300 g for other defect categories.

2.2.4 Defects and Allowances

2.2.4.1 ***Presentation***

(a) When the product is presented as "free-flowing" a tolerance of 10% (m/m) shall be allowed for pieces which are stuck together to such an extent that they cannot easily be separated in the frozen state. When assessing this factor, the sample unit shall be the entire contents of the pack or 1 kg.

(b) If presented as size graded, the product shall contain not less than 80% by number of bean pods of the declared size or smaller sizes. Of the 20% by number which may be of larger sizes, not more than a quarter may be of the second size larger and none may be larger than the second size larger.

2.2.4.2 ***Visual Defects***

For tolerance based on the standard sample size indicated in Section 2.2.3, visual defects shall be assigned points in accordance with the Table in this Section. The maximum number of defects permitted is the Total Allowable Points rating indicated for the respective categories 1, 2 and 3 or the Combined Total of the foregoing categories.

Table 2. Defect Tolerances by Count

Defect	Defect Categories			Total	
	1	2	3		
(a) E.V.M.					
(i) Bean leaf (each piece)	1				
(ii) Other E.V.M. (each piece)	2				
(b) Stem end	1				
(c) Major blemish		3			
(d) Minor blemish		1			
(e) Mechanical damage (whole and cut styles)		1			
(f) Undeveloped (whole style)		2			
(g) Tough strings			3		
(h) Fibrous unit			1		
(A) All but whole style	15	50	10		60
(B) Whole style only	15	30	6		40
(i) Small pieces (whole, cut and sliced styles) - maximum 20% m/m					

Proposal: In table above, from c to h: 20%; and if any one of the defects is over 1.5 times the tolerance.

[PROPOSAL by France

DEFECTS	TOLERANCES (%m/m)	TOLERANCES (BY NUMBER)
(a) EVM		**3/ kg**
(b) Stem end		**6/ kg**
(c) Major blemish	**8**	
(d) Minor blemish	**12**	
(e) Mechanical damage (Whole and cut styles)	**5**	
(f) Undeveloped (Whole style)	**2**	
(g) Tough strings and (h)Fibrous unit	**1**	
(h) Small pieces (Whole, Cut and Sliced Styles)	**20**	

TOTAL TOLERANCES: b t o h: 20%; and if one of the defects is over 1.5 the tolerance of the table]

2.3 DEFINITION OF "DEFECTIVES"

Any standard sample unit which fails to comply with the quality requirements, as set out in Sections 2.2.1 and 2.2.4 shall be regarded as a "defective".

2.4 LOT ACCEPTANCE

A lot will be considered acceptable when the number of "defectives" as defined in Section 2.3 does not exceed the acceptance number (c) for the appropriate sample plan with an AQL of 6.5.

In applying the acceptance procedure each "defective", as indicated in Sections 2.2.1 and 2.2.4.2, is treated individually for the respective characteristics.

3. FOOD ADDITIVES

None permitted.

4. LABELLING

4.1 NAME OF THE PRODUCT

4.1.1 The name of the product shall include the designations "green beans" or "wax beans" as applicable.

4.1.2 A statement regarding type ("round" or "flat") may be made if customary in the country of retail sale.

4.2 SIZE DESIGNATION

If a term designating the size of the beans is used:

(a) it shall be supported by the size in mm as shown in Section 2.4.5.2; and/or

(b) the words "extra small", "very small", "small", "medium", or "large" as appropriate; and/or

(c) by a correct graphic representation on the label of the size range to which the beans predominantly conform; and/or

(d) the customary method of declaring size in the country in which the product is sold.

ANNEX VI: PEAS

In addition to the general provisions applicable to quick frozen vegetables, the following specific provisions apply:

1. DESCRIPTION

1.1 PRODUCT DEFINITION

Quick frozen peas are the product prepared from fresh, clean, sound, whole, young and tender peas conforming to the characteristics of the species *Pisum sativum* L. which have been washed, sufficiently blanched to ensure adequate stability of colour and flavor during normal marketing cycles.

1.1.1 Types

(a) Any suitable variety of peas conforming to species *Pisum sativum* L may be used.

(b) The product shall be presented as "peas" or may be presented as "garden peas" provided they meet the organoleptic and analytical characteristics.

(c) Sweet green wrinkled varieties or hybrids having similar characteristics included.

1.2 PRESENTATION

1.2.1 Sizing

1.2.1.1 Quick frozen peas of either type may be presented sized or un-sized.

1.2.1.2 If peas are size graded they shall conform to one of the two following systems of specifications for the size names. Other size ranges and designations may be used and should be labelled accordingly

Table 1 – Specifications for Sizing

Size Designation	Round Hole Sieve Size In mm
Specification A	
1) Small	up to 8.75
2) Medium	up to 10.2
3) Large	over 10.2
Specification B	
1) Extra small	up to 7.5
2) Very small	up to 8.2
3) Small	up to 8.75
4) Medium	up to 10.2
5) Large	over 10.2

1.2.1.3 *Tolerances for Sizes*

If size graded, the product shall have a minimum of 80% either by number or weight of peas of the declared size, or of smaller sizes. It shall contain no more than 20% either by number or weight of peas of the next two larger adjoining sizes when applicable.

[PROPOSAL BY FRANCE

Size Designation	Round Hole Sieve Size in m	
	Will Not Pass Through	Will Pass Through
Smooth Green Peas		
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	]

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 COMPOSITION

2.1.1 Basic Ingredients

Peas as defined in Section 1.

2.1.2 Optional Ingredients

(a) Sugars as defined in the Standard for Sugars (CODEX STAN 212-1999);

(b) Salt (sodium chloride) as defined in the Standard for Food Grade Salt (CODEX STAN 150-1985);

(c) Edible fats and oils as defined in the Standard for Named Vegetable Oils(CODEX STAN 210-1999), and for named animal fats (Codex –STAN 211-1999)

(d) Spices and culinary herbs[6]

(e) Named Sauces

2.2 QUALITY FACTORS

2.2.1 Organoleptic and other characteristics

2.2.1.1 The product shall be of a reasonably uniform green colour according to type, whole, clean, practically free from foreign matter, free from any foreign taste or smell and practically free from damage by insects or diseases.

2.2.1.2 The product shall have a normal flavour, taking into consideration any seasonings or ingredients added.

2.2.2 Analytical Characteristics

The alcohol-insoluble solids content as determined by the method specified in CODEX STAN 234 must not exceed:

(a) for Peas /Garden Peas 23% m/m;

(b) for Sweet Green Peas 19% m/m.

[6] where available, in accordance with the relevant Codex Standard

2.2.3 Definition of Defects

(a) ***Blond Peas*** means peas which are yellow or white but which are edible (that is, not sour or rotted).

(b) ***Blemished Peas*** means peas which are slightly stained or spotted.

(c) ***Seriously Blemished Peas*** means peas which are either hard, shrivelled, spotted, discoloured, worm-eaten or otherwise blemished to an extent that the appearance or eating quality is seriously affected.

(d) ***Pea fragments*** means portions of peas, separated or individual cotyledons, that are crushed, partially broken, broken or loose skins, excluding entire intact peas with skins detached.

(e) ***Extraneous Vegetable Material (E.V.M.)*** means any vine, leaf or pod material from the pea plant, or other harmless vegetable material.

2.2.4 Standard Sample Size

The standard sample size for presentation shall be 500 g

2.2.5 *Tolerances for Visual Defects [table 2]*

Based on a sample unit of 500 g the end product shall have not more than the following:

Table 2. Tolerances for Visual Defects

Blond Peas	2% m/m
Blemished Peas	5% m/m
Seriously Blemished Peas	1% m/m
Pea Fragments	12% m/m
E.V.M.	0.5% m/m but not more than 12 cm^2 in area

2.3 CLASSIFICATION OF "DEFECTIVES"

Any standard sample unit which fails to comply with the quality requirements, as set out in Sections 2.2.1 and 2.2.2 shall be regarded as a "defective".

In addition, any standard sample unit which fails to comply with the quality requirements shall be regarded as a "defective" when any of the defects listed under section 2.2.3 is present in more than twice the amount of the specified tolerance for the individual defect as listed under section 2.2.4 or if the total of section 2.2.4 from (a) to (d) inclusive exceeds 15% m/m.

2.4 LOT ACCEPTANCE

A lot will be considered acceptable when the number of "defectives" as defined in Section 2.3 does not exceed the acceptance number for the appropriate sample plan with an AQL of 6.5.

3. FOOD ADDITIVES

4. FLAVOURINGS

The flavourings used in products covered by this standard shall comply with the *Guidelines for the Use of Flavourings* (CAC/GL 66-2008).

5. LABELLING

5.1 NAME OF THE PRODUCT

5.1.1 The name of the product shall include the designation "peas", except that where peas are presented in conformity with Section 1.1.1

5.1.2 Types "Garden Peas", Sweet Green Peas, the designation shall be "garden peas" or the equivalent designation used in the country of retail sale.

ANNEX VII: SPINACH

In addition to the general provisions applicable to quick frozen vegetables,
the following specific provisions apply:

1. DESCRIPTION

1.1 PRODUCT DEFINITION

Quick frozen spinach is the product prepared from fresh, clean, sound edible parts of the spinach plant conforming to the characteristics of the species *Spinacia oleracea* L., and which have been sorted, washed, sufficiently blanched to ensure adequate stability of colour and flavor during normal marketing cycles and properly drained.

1.2 PRESENTATION

1.2.1 Styles

(a) ***Whole spinach*** - The complete tender/young spinach plant with root removed;

(b) ***Leaf spinach*** - Substantially whole leaves most of which are separated from the root crown with a maximum length of the stem of 10 cm;

(c) ***Cut-leaf spinach*** - Parts of leaves of spinach generally larger than 20 mm in the smallest dimension;

(d) ***Chopped spinach*** - Spinach leaves cut into small pieces ranging from 3 to 10 mm in the largest dimension, but not comminuted to a pulp or puree;

(e) ***Pureed spinach (spinach puree)*** - Spinach finely chopped which passes through a sieve such that the leaf particles are less than 3 mm dimension.

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 COMPOSITION

2.1.1 Basic Ingredients

Spinach as defined in Section 1.

2.1.2 Optional Ingredients

(a) Sugars as defined in the Standard for Sugars (CODEX STAN 212-1999);

(b) Salt (sodium chloride) as defined in the Standard for Food Grade Salt (CODEX STAN 150-1985);

(c) Edible fats and oils as defined in the Standard for Named Vegetable Oils(CODEX STAN 210-1999), and for named animal fats (Codex –STAN 211-1999)

(d) Spices and culinary herbs[7]

(e) Named Sauces

2.2 QUALITY FACTORS

2.2.1 Uniformity

A tolerance of 10% by weight of non-conforming styles applies.

2.2.2 General Requirements

Quick frozen spinach shall be practically free from tough fibrous material and for the styles of “whole leaf” and “cut leaf” not materially disintegrated due to mechanical damage; and, with respect to visual defects or other defects subject to a tolerance, shall be:

(a) well drained and containing no excess water;

(b) practically free from sand and grit;

[7] where available, in accordance with the relevant Codex Standard

(c) practically free from loose or detached leaves in "whole" style only;

(d) practically free from root material;

(e) reasonably free from discoloured leaves or portions thereof;

(f) reasonably free from flower stems (seed heads);

(g) reasonably free from flower buds;

(h) reasonably free from crown and portion thereof, except for "whole" spinach;

(i) reasonably free from extraneous vegetable material (E.V.M.).

2.2.3 Analytical Characteristics

(a) Mineral impurities such as sand, grit and silt shall be not more than 0.1% m/m, measured on the whole product basis;

(b) Salt-free dry matter - not less than 5.5% m/m, expressed as NacL

2.2.4 Definition of Visual Defects

(a) ***Loose leaves ("whole" style only)*** - Leaves which are detached from the crown.

(b) ***Discolouration*** - Discolouration of any kind on the leaves or stem portions and which materially detracts from the appearance of the product.

(i) Minor - Discolouration which is light in colour;

(ii) Major - Discolouration which is dark brown or black in colour.

(c) ***Extraneous Vegetable Matter*** - Harmless vegetable material such as grass, (E.V.M) weeds, straw, etc.

(i) Minor - E.V.M. which is green and tender;

(ii) Major - E.V.M. which is other than green or is coarse.

(d) ***Seed heads (flower stems)*** - The flower bearing portion of the spinach plant, which is longer than 25 mm;

(e) ***Flower buds*** - The separate flower buds detached from the seed head;

(f) ***Crowns (exclusive of "whole" style)*** - The solid area of the spinach plant between the root and the attached leaf clusters;

(g) ***Root material*** - Any portion of the root, either loose or attached to leaves.

2.2.5 Standard Sample Size

The standard sample size for segregating and evaluating visual defects shall be as indicated in Table 1.

Table 1. Sample Size

Style	Standard Sample Size (g)
(a) Whole and leaf	300
(b) Cut leaf	300
(c) Chopped	100
(d) Pureed	100

2.2.6 Method of Examination

For separation and enumeration of visual defects the test sample (standard sample size) is placed in water in a deep tray, and the leaves or leaf portion separated one by one.

2.2.7 Defects and Allowances

For tolerances based on the standard sample sizes indicated in Section 2.2.4, visual defects shall be assigned points in accordance with the appropriate Table in this Section. The maximum number of defects permitted is the Total Allowable Points rating indicated for the respective categories Minor, Major and Serious or the Combined Total of the foregoing categories.

Table 2 - Whole leaf and cut leaf style

Defect	Unit of Measurement	Defect Categories			
		Minor	Major	Serious	Total
(a) Loose Leaves (whole style only)	Each Leaf	1			
(b) Discolouration	Each 4 cm²				
(i) Minor		1			
(ii) Major			2		
(c) E.V.M.	Each 5 cm				
(i) Minor		1			
(ii) Major			2		
(d) Seed heads	Each whole head		2		
	Each portion	1			
(e) Crown (exclusive of "whole" style)	Each whole crown		2		
	Each part				
(f) Root material	Each piece			4	
Total Allowable Points		20	10	4	20

OPTION 2: Table 1 - Whole Leaf and Cut Leaf Style (France)

Defect	Tolerance (By number)	Tolerance (% m/m)
a) Discolouration		
Minor	5	
Major	20	
b) EVM	2	
Flower buds	5	
Crown material	3	
Root material	1	
Mineral matter		0,1
Total allowable points	25	

Table 2 - Chopped Style

Defect	Unit of Measurement	Defect Categories		
		Minor	Major	Total
(a) Discolouration	Each cm²			
(i) Minor		1		
(ii) Major			2	
(b) E.V.M.	Each 1 cm			
(i) Minor		1		
(ii) Major			2	
(c) Flower buds	Each 50 pieces	1		
(d) Crown material	Each piece		2	
(e) Root material	Each piece		2	
Total Allowable Points		20	10	20

Option 2; (France) Table 2 – Chopped and pureed Style Standard sample size: 100g

Defect	Allowance
Any dark particle or flower bud	Shall not affect the overall appearance of the product
Mineral matter	0,1%

Table 3 - Pureed Style

Defect	Allowance
Any dark particle or flower bud	Shall not affect the overall appearance of the product

2.3 CLASSIFICATION OF "DEFECTIVES"

Any standard sample unit which fails to comply with the quality requirements, as set out in Sections 2.1.1, 2.1.6 and 2.2.1 shall be regarded as a "defective".

2.4 LOT ACCEPTANCE

A lot will be considered acceptable when the number of "defectives" as defined in Section 2.2 does not exceed the acceptance number (c) for the appropriate sample plan with an AQL of 6.5.

In applying the acceptance procedure each "defective", as indicated in Section 2.2, is treated individually for the respective characteristics.

3. FOOD ADDITIVES

None permitted.

4. LABELLING

4.1 NAME OF THE PRODUCT

The name of the product shall include the designation “Spinach”.

APPENDIX II

METHODS OF ANALYSIS FOR QUICK FROZEN VEGETABLES

Products	Provisions	Method	Principle	Type
Quick frozen fruits and vegetables	Thawing procedure	CAC/RM 32	Thawing	I
Quick frozen fruits and vegetables: Vegetables	Cooking procedure	CAC/RM 33	Cooking	I
Quick frozen fruits and vegetables	Net weight	CAC/RM 34	Weighing	I
Quick frozen peas	Solids, alcohol insoluble	CAC/RM 35	Gravimetry	I
Quick frozen green and wax beans	Tough strings	CAC/RM 39	Stretching	I
Quick frozen fruits and vegetables: Berries, Whole kernel corn and Corn-on-the-cob	Soluble solids, total	CAC/RM 43	Refractometry	I
Quick frozen fruits and vegetables: Berries, leek and carrot	Mineral impurities	CAC/RM 54	Flotation and sedimentation	I
Quick frozen fruits and vegetables: Peaches and berries	Drained fruit/drained berries	Described in the Standards	Draining	I
Quick frozen spinach	Dry matter, Salt-free	Described in the Standard	Weighing	I
Quick frozen French fried potatoes	Moisture	AOAC 984.25	Gravimetry (convection oven)	I

CODEX STAN 234-1999: RECOMMENDED METHODS OF ANALYSIS AND SAMPLING

CODEX RECOMMENDED METHODS (CAC/RMs) and methods described in the standard(s) – See Appendix, paragraphs 5-7 in the Background

CODEX RECOMMENDED METHODS (CAC/RMs) ARE DESCRIBED HERE BELOW FOR CONSIDERATION BY CCPFV

STANDARD PROCEDURE FOR THAWING OF QUICKEN FROZEN FRUITS AND VEGETABLES (CAC/RM 32-1970)

1. SCOPE

This thawing procedure is for the purposes of analysis and assessing the organoleptic the characteristics and is generally applicable to all quick frozen fruits and vegetables.

2. FIELD OF APPLICATION

2.1 Most on quick frozen fruits and many vegetables can be examined on the basis of their organoleptic characteristics in a thawed condition. Where a vegetable requires cooking prior to organoleptic testing the prescribed procedure for the cooking of quick frozen vegetables is to be followed (CAC/RM 33-1970).

2.2 Where a particular quick frozen fruit or vegetable requires special treatment not fully covered by this general procedure for examination, the treatment outlined in the appropriate Codex commodity standard should be followed.

3. DEFINITIONS

3.1 Thawing of quick frozen fruits and vegetables for the purpose of this examination procedure, means subjecting the product to controlled conditions of temperature until the product is sufficiently free from ice crystals so that the individual units can be readily separated and handled.

3.2 Air thawing, means thawing of the product in unopened container by exposure to air of an ambient temperature in free or forced ventilation.

3.3 Water thawing by indirect contact, means thawing of the product in a tightly sealed container by immersion in water, stationary or flowing, at a temperature not exceeding 30°C.

3.4 Water thawing by direct contact, means thawing of the unpacked product by immersion in water at a temperature not exceeding 30°C. (This method is applicable only to some vegetables).

4. PRINCIPLE OF METHODS

By rapidly thawing quick frozen products under controlled conditions, the quality factors of the original product retained by the quick freezing process are preserved to a high degree.

For the purpose of this examination procedure there are two general methods for thawing quick frozen fruits and vegetables: air thawing and water thawing, Water thawing is faster and in some instances more desirable than air thawing, some quick frozen commodities, especially those where the product consists of small individual units surrounded, by air, thaw much faster than others, Through experience the analyst will learn to judge the best procedure and time requirement for adequate thawing for each commodity.

5. APPARATUS

5.1 Electric fan (optional), for forced ventilation air thawing.

5.2 Water bath with thermostat and circulation pump, for indirect or direct water thawing.

5.3 Plastic bags or other suitable watertight and closable container, for samples to be subjected to water thawing.

5.4 Clamps or weights, to prevent agitation of package in water bath during thawing.

5.5 Screen, to remove excess water after water thawing by direct contact.

5.6 Tray, on which the product is placed after removal of excess water when thawed by direct contact with water.

6. SAMPLES

The entire package or sample unit is used intact, except that in the case of bulk or industrial size containers a representative sample of 1-2 kg is adequate for testing and organoleptic examination.

7. PROCEDURE

For the rapid thawing of quick frozen products contained in consumer-size packages, bulk or industrial packages and sub-samples of these in suitable containers, one of the following methods should be used:

7.1 Air thawing

Thaw in unopened containers at ambient temperature. To hasten the thawing process forced air ventilation may be applied and the packages may be separated from each other.

7.2 Water thawing by indirect contact

Products packed in tightly sealed containers may be thawed by immersion of the container in water at a temperature not exceeding 30°C, e.g. a water bath with thermostat and circulation pump.

7.3 Water thawing b direct contact (applicable only to some vegetables)

The vegetable is removed from the pack and thawed by immersion in water at a temperature not exceeding 30°C. As soon as the product is thawed sufficiently to permit easy separation of the individual units, it is drained on a suitable screen to remove excess water and placed on a tray for final air thawing and examination.

8. NOTES ON PROCEDURE

8.1 Selection of thawing method

8.1.1 Certain quick frozen vegetables should not be subjected to water thawing by direct contact in order to prevent leaching of soluble solids or product material.

8.1.2 If there is an indication of off flavours or off odours in the quick frozen product when the packages are opened, water thawing by direct contact is not to be used as a preparatory step to cooking as the off flavour or off odour may be partially removed during such thawing. Such suspect samples are to be placed in a cooking receptacle while still frozen.

8.2 Prevention of damage

Extreme care should be taken during the thawing process in order that the product is not damaged or exposed to abuse that will alter or degrade the true characteristics of the product. Quick frozen fruits are more susceptible to abuse during thawing than quick frozen vegetables. Some fruits, especially light coloured fruits, oxidize quite readily and should be examined for colour before thawing is completed. Also some fruits show a breakdown in texture or “bleed” when thawed more than necessary. Consequently, rapid thawing under controlled conditions is most desirable in preparing the product for laboratory examination.

9. TEST REPORT

The identity of the sample and the thawing procedure used should be recorded.

10. ADDITIONAL NOTES

10.1 Quick frozen corn (maize) or products containing corn should always be air thawed or water thawed by indirect contact to avoid leaching of soluble solids or product material.

10.2 Quick frozen peaches and apricots (light coloured fruits) and red cherries oxidize quite readily and should be examined while some ice crystals remain in the product.

STANDARD PROCEDURE FOR COOKING OF QUICK FROZEN VEGETABLES (CAC/RM 33-1970)

1. SCOPE

This cooking procedure is for the purposes of analysis and assessing the organoleptic characteristics and is generally applicable to all quick frozen vegetables.

2. FIELD OF APPLICATION

2.1 The cooking procedure described below applies to those quick frozen vegetables which are normally cooked prior to consumption for the proper evaluation of such organoleptic quality factors as texture, tenderness, maturity or flavour.

2.2 Where a particular quick frozen vegetable requires a special cooking procedure not fully covered by this general procedure for examination, the method outlined in the appropriate Codex commodity standard shall be followed.

3. DEFINITION

Cooking of vegetables, for the purpose of this examination procedure, means to prepare, food for the table by subjecting quick frozen vegetables to an appropriate standard (cooking) procedure by partial or whole immersion of the product in boiling water for a specified time.

4. PRINCIPLE OF METHOD

By heating the quick frozen vegetable, through partial or whole immersion in water at boiling temperature for such a period of time as to undergo specific changes of conditions.

5. APPARATUS

5.1 Two-litre sauce pan with cover:

5.2 Hot plate or gasfire;

5.3 Tray on which product is placed after cooking for cooling and presentation;

5.4 Graduated cylinder or similar measuring device for water.

6. SAMPLES

Generally a separate set of samples for cooking purposes only need not be taken. Ordinarily part of the, contents of a larger retail size package or part of a sample of a bulk container, used, for testing other product characteristics can be used for the cooking procedure. Care should be taken, however, that the portion used for cooking is not treated differently from the normal procedure, e.g. thawed prior to cooking whereas the product would usually be put in boiling water while stil1 in the frozen state.

DETERMINATION OF NET WEIGHT OF QUICK FROZEN FRUITS AND VEGETABLES (CAC/RM 34-1970)

1. PRINCIPLE OF THE METHOD

The weight of the container including the product therein is determined. The weight of the container itself is determined. The net weight is calculated from the difference of these two weights.

2. APPARATUS

2.1 Balance of adequate capacity having a sensitivity of 0.25 (or 0.01 oz.), for containers not in excess of 2 kg (or 5 lb).

2.2 Balance of adequate capacity having a sensitivity of 0.70 s (or 0.025 oz), for containers in excess of 2 kg (or 5 lb).

3. PROCEDURE

3.1 Set balance on firm, level support and adjust indicator to zero. Remove container from low temperature storage and with a towel remove frost and ice from outside of the container. Weigh unopened container immediately and record as gross weight (G).

3.2 Open container and remove contents including product particles frost or ice crystals that may be adhering to the container. Blot off free water with a towel and air dry empty container at room temperature. Weigh the dry, empty container and record as tare weight (T).

4. CALCULATION AND EXPRESSION OF RESULTS

The net weight of the sample is given by the following formula:

$$\text{Net weight} = G - T$$

Where:

G = the gross weight found under Section 3.1

T = the tare weight found under Section 3.2

DETERMINATION OF THE ALCOHOL-INSOLUBLE SOLIDS CONTENT (QUICK FROZEN PEAS) (CAC/RM 35-1970)

1. PRINCIPLE OF THE METHOD

The alcohol-insoluble solids in peas consist mainly of insoluble carbohydrates (starch) and protein. A weighed quantity of the sample is boiled with slightly diluted alcohol. The solids are washed with alcohol until the filtrate is clear. The alcohol-insoluble solids are dried and weighed. The percentage by mass present is used as a guide to maturity.

2. REAGENTS

2.1 Ethanol (95%) or denaturated ethanol

denaturated with 5% v/v methanol.

2.2 Diluted ethanol or diluted denaturated ethanol 80% v/v

Dilute 8 parts by volume of reagent under 8.2.1 to 9.5 parts by volume with H_2O.

3. APPARATUS

3.1 Analytical balance;

3.2 Beaker, 600 ml, if sample is boiled or 250 ml (standard taper ground-glass joint) flask with reflux condenser if refluxed;

3.3 Buchner funnel;

3.4 Drying dish with lid, flat bottomed;

3.5 Hot plates or boiling water bath for refluxing or boiling;

3.6 Clamps or weights to prevent agitation of package in water bath during thawing;

3.7 Desiccator with active desiccant;

3.8 Drying oven, well ventilated and thermostatically controlled and adjusted to operate at 100 ± 2°C;

3.9 Filter paper, Whatman No. 1 or equivalent;

3.10 Macerator or blendor;

3.11 Plastics bag of sufficient capacity to hold the entire sample for thawing;

3.12 “Policemen” on glass rods, bent so as to facilitate cleaning flask or beaker;

3.13 Water bath, with continuous flow at room temperature or regulated at room temperature for thawing.

4. PREPARATION OF TEST SAMPLE

Place frozen peas or frozen peas with sauce in plastic bag and tie off. Immerse sample in water bath with continuous flow at room temperature or regulated at room temperature. Avoid agitation of package during thawing by using clamps or weights if necessary. When completely thawed, remove package from bath. Blot off adhering water from the plastic bag. Transfer the peas from container to a sieve, the meshes of which are made by so weaving wire as to from square openings of 2.8 mm by 2.8 mm. If sauce is present, wash with gentle spray of water at room temperature until the sauce is removed. Without shifting the peas, incline the sieve as to facilitate drainage, and drain two minutes. Wipe the bottom of the sieve. Weight 250 g peas into blendor, add 250 ml distilled water and macerate to a smooth paste. If there is less than 250 g sample, use the entire sample of peas with an equivalent quantity by mass of distilled water and macerate to a smooth paste.

5. PROCEDURE

5.1 Dry a filter paper in flat-bottomed dish, lid off, for 2 hours at 100 ± 2°C. Cover dish, cool in a desiccator, and weigh accurately. (The filter paper should be larger than the base of the funnel and folded at the circumference to facilitate subsequent removal without loss of solids).

5.2 Weight 20 g ± 0.01 g paste into a 250 ml ground-joint flask, add 120 ml denaturated ethanol or ethanol, and swirl to mix. Reflux on a steam or water bath for 30 minutes.

If boiling rather than refluxing is preferred, weight 40 g ± 0.01 g paste into a 600 ml beaker. Add 240 ml denaturated ethanol or ethanol, stir, and cover beaker. Bring solution in the beaker to a boil and simmer slowly for 30 minutes on a hot plate.

Immediately filter with suction on a Buchner funnel through the dried and weighed filter paper. Decant most of the supernatant liquid through the filter paper. Wash the solids in the flask or beaker without delay, with small portions of 80% denaturated ethanol or 80% ethanol until the washings are colourless, allow solids to become dry during the washing. Transfer solids to the filter paper, spreading the solids evenly.

5.3 Remove the filter paper containing the residue from the funnel, transfer to the dish used in preparing the filter paper and dry unconvered in an air over for 2 hours at 100 ± 2°C. Cover the dish, cool in a desiccator, and weight accurately. The weight of the dry residue is the difference between the weight under Section 5.1 and this final weight.

6. CALCULATION AND EXPRESSION OF RESULTS

Calculate the alcohol-insoluble solids content of the sample by means of the following formula:

6.1 If 20 g sample is refluxed:

Alcohol-insoluble solids content (% m/m) = $10\,\underline{M}$

Where:

$\underline{M}$ = the mass in g of dry residue (see Section 5.3)

6.2 If 40 g sample is refluxed:

Alcohol-insoluble solids content (% m/m) = $5\,\underline{M}$

Where:

$\underline{M}$ = the mass in g of dry residue (see Section 5.3)

7. REPEATIBILITY OF RESULTS

The difference between results of duplicate determination (results obtained simultaneously or in rapid succession by the same analyst) should not exceed 0.6 g alcohol-insoluble solids for 100 g of the product.

8. EXPRESSION OF RESULTS

Results are expressed as g alcohol-insoluble solids per 100 g of the product (% m/m).

TOUGH STRING TEST
(CAC/RM 39-1970)

1. DEFINITION

A tough string is a string that will support the weight of 250 g for five seconds or longer when tested in accordance with the procedure described below.

2. PRINCIPLE

Strings are removed from individual pods, fastened through a clamp assembly weighing 250 g, and hung so that the string supports the entire weight. If the string supports the weight for five seconds or more it is considered a tough string.

3. APPARATUS

3.1 Weighted clamp

Use battery clamp (with teeth filed off or turned back), spring operated clothes pin, or binder clip which presents a flat clamping surface. Attach weight so that entire assembly of weight and clamp weighs 250·g. See Figure 1. A bag containing lead pellets is convenient as a weight.

4. PROCEDURE

4.1 From the drained product select a representative sample of not less than 285 g. Record the weight of this test sample.

4.2 Break the individual bean units and set aside those that show evidence of tough strings. Remove the strings from the pods and retain the pod material for weighing.

4.3 Fasten the clamp assembly to one end of the string. Grasp the other end of the string with the fingers (a cloth may be used to aid in holding the string) and lift gently.

4.4 If the string supports the 250 g assembly for at least five seconds consider the bean unit as containing tough string. If the string breaks in less than five seconds, retest the broken parts that are 13 mm or longer to determine if such portions are tough.

4.5 Weigh the bean units which contain tough strings.

5. CALCULATION AND EXPRESSION OF RESULTS

$$\%\ \text{m/m pods containing tough strings} = \frac{\text{pods containing tough strings (g)}}{\text{test sample (g)}} \times 100$$

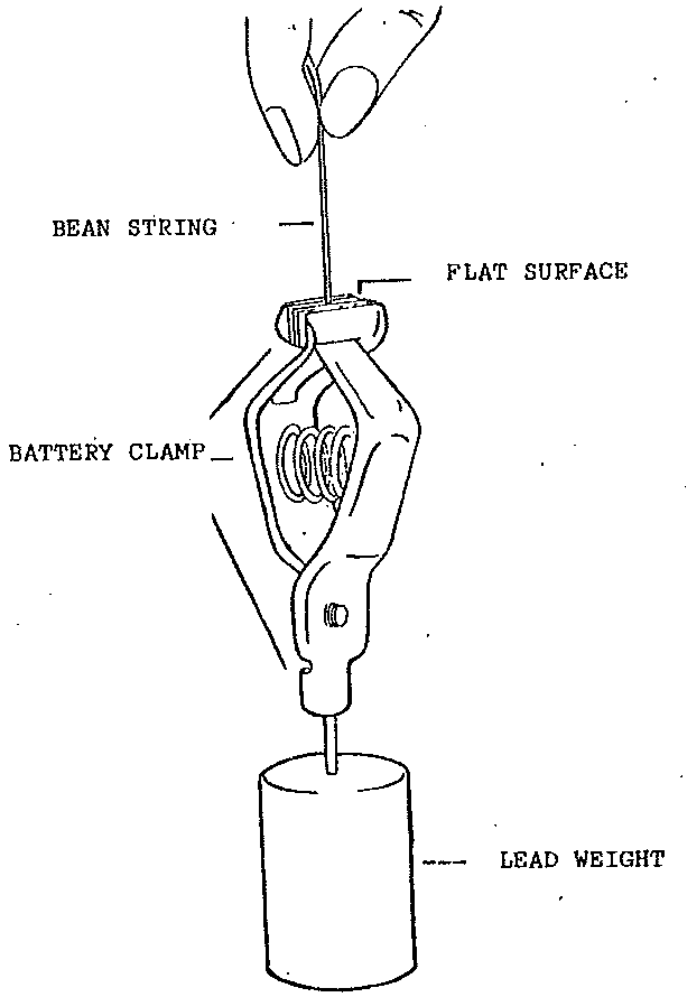

Figure 1 - Tough String Tester for Green or Wax Beans

DETERMINATION OF TOTAL SOLUBLE SOLIDS CONTENT OF FROZEN FRUITS (CAC/RM 43-1971)

1. SCOPE

This method provides a standardized procedure for the determination of the total soluble solids content of quick frozen fruits using the refractometric reading (at 20°C) and expressing it in terms of the International Sucrose Scale. The method is applicable to both consumer size and bulk containers, although special sampling procedures must be used on large containers.

2. APPARATUS

2.1 High speed mechanical blender.

2.2 Refractometer, Abbe type.

2.3 Lens Paper, milk straining pads or other suitable filtering medium.

2.4 Pliofilm bags or metal containers with tight seal and capacity of about 2 to 3 kg.

2.5 Special sampling device for bulk containers. Power driven tube of stainless steel or other corrosion resistant metal -diameter 5 to 8 cm, length about 1 m. One end of tube has serrated edges (like saw teeth) and “set” to prevent binding. A wooden ram or dowel of a slightly smaller diameter will facilitate removal of the core.

3. SAMPLING

3.1 **Retail-size Containers** - Use the entire product in the container. Let sample thaw in the original container at room temperature.

3.2 **Catering-size Containers** - (Generally of sizes up to 5 kg or 12 lb) - Use the entire product if possible. Otherwise let the sample thaw in the original container at room temperature. Mix the thawed sample thoroughly and remove approximately 1,000 g for subsequent analysis.

3.3 **Bulk Containers** - Using the power-driven sampling tube, take three (3) vertical cores evenly spaced around the circumference of the container and one (1) from the centre. Drive the sampling tool full length of container as nearly as possible. Remove cores using the wooden dowel or ram and place in sampling container with tight closure. Combined sample should be at least 1,000 g. Let sample thaw in closed sample container at room temperature.

4. PROCEDURE

Mix thawed sample thoroughly in the high speed blender. Generally this will require about two minutes. Filter a portion of the well mixed, blended sample through the filter paper or other medium. Determine the refractometer reading using a drop of the clear, filtered serum.

5. CALCULATION AND EXPRESSION OF RESULTS

Correct the refractometer reading obtained in 4 to 20°C using a temperature correction table for refractometric reading at temperatures other than 20°C and convert to soluble solids using the International Scale (1936) of Refractive Indices of Sucrose Solutions.

Results are expressed as % m/m soluble solids expressed as sucrose as determined by refractometer at 20°C.

DETERMINATION OF MINERAL IMPURITIES IN QUICK FROZEN FRUITS AND VEGETABLES (CAC/RM 54-1974)

1. PRINCIPLE OF METHOD

This method describes a procedure by which sand and other inorganic material is separated from plant tissue by a process of flotation and sedimentation. The sand and earthy particles being heavier sink to the bottom of the receptacle and the residue is then collected, incinerated, weighed and reported as "Mineral impurities". "Mineral Impurities" as used in the text can be technically described as "Water Insoluble Inorganic Residue" and will include not only silica but also other matter such as particles of limestone.

2. APPARATUS AND REAGENTS

2.1 Apparatus

(1) Blendor or macerator (Atomix, Turmix, Waring or equivalent);

(2) Beakers - 2,000 ml capacity;

(3) Funnels;

(4) Filter paper, Whatman N.º 1, or equivalent;

(5) Porcelain or platinum crucibles;

(6) Air oven or Bunsen gurner;

(7) Muffle furnace (600 c) Desiccator with active desiccant Analytical balance.

2. 2 Reagents

NaCl solution (15% w/v).

3. PREPARATION OF TEST SAMPLE (ANALYTICAL SUB)

3.1 Fruit Products

(a) Containers of 500 g or less – use the entire contents fruit plus any packing medium). Comminute in blender and transfer the entire mixture to the first beaker, using small quantities of water to assure complete transfer of material.

(b) Containers larger than 500 g – thoroughly mix the contents of the entire container and quickly remove a representative 500 g portion. Blend and transfer as specified in (a).

3.2 Vegetable Products

The method is similar to that specified in Section 3.1 for fruits except the analytical sub, is 250 g. After the sub is placed in the blendor a small amount of water may be necessary to facilitate maceration of the material.

4. PROCEDURE

(1) Transfer the analytical sub to a 2 litre beaker taking care to include any sand that might settle out.

(2) Nearly fill the beaker with water arid mix contents by swirling, using a stirring rod 9 if needed.

(3) Let stand about 10 minutes and decant supernatant material and water into a second 2 litre beaker.

(4) Refill the first beaker with water, repeat the mixing and swirling operation and again let set 10 minutes.

(5) Fill the second beaker with water, mix and swirl, and let stand 10 minutes.

(6) At the end of the 10 minute period decant beaker N.º 2 into beaker N.º 3. Likewise decant beaker N.º 1 in beaker N.º 2.

(7) Repeat the sequence carefully decanting supernatant from beaker N.º 3 into sink, until all fruit tissue is removed from the sample.

(8) Finally collect the residue from all the beakers in beaker N.º 3.

(9) Remove any seeds or fruit tissue that settle out by treating the residue in beaker N.º 3 with hot 15% w/v NaCl solution.

(10) Remove NaCl by washing with hot water. Removal can be verified by testing the washings with $AgNo_3$.

(11) Finally transfer residue remaining in Step (10) to a funnel fitted with ashless filter paper. Use small portion of water to assure transfer of all residue. Discard filtrate.

(12) Transfer filter paper to a weighed crucible. Dry in air oven or oven Bunsen burner. Ignite in muffle furnace for about 1 hour at 600ºC.

(13) Cool in desiccator and weigh.

(14) The weight of water insoluble residue is determined by subtracting the weight of the empty crucible from the weight of the crucible plus incinerated residue.

5. EXPRESSION OF RESULTS

500 g, multiply the value (in mg) obtained in Step (14) by two (2). If the test sample is less than 500 g, use the following formula:

$$X = \frac{1000}{X} \times R$$

Where:

X = mineral impurities (mg/kg)

W = weight of test sample (g)

R = residue remaining after incineration (mg}

DRAINED WEIGHT
(QUICK FROZEN PEACHES AND BERRIES – Bilberries and Blueberries)

Drained weight is determined by thawing the product until it is practically free from ice crystals and then drain on a screen – 3 mesh/cm (8 mesh/inch) – and for two minutes. The weight of product retained by the screen is "drained weight". When dry sugar(s) is added to the peaches or berries it shall be removed with a gentle spray of water before draining.

DETERMINATION OF SALT-FREE DRY MATTER
(QUICK FROZEN SPINACH)

1. Determine the total dry matter of the product by drying over sand for 4 hours at 105°C.

2. From the value obtained in (1) deduct the amount of salt (NaCl) determine by either (a) electrometric titration using a pH meter wil a silver electrode; or (b) direct titration with $AgNO_3$ Express the result, after deducting salt from total dry matter, as "salt-free dry matter.

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 2
(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

APPENDIX III

QUICK FROZEN VEGETABLES - FOOD ADDITIVES

Commodity	Maximum Level
Peas	
Natural flavours and their identical synthetic equivalents except those which are known to represent a toxic hazard[1]	Limited by GMP
Spinach	None permitted
Leek None Permitted	
Broccoli	
Citric acid (INS 330) used as antioxidant during blanching operation.	
4.2 Carry-Over Principle	
Section 4.1 of the *General Standard for Food Additives* (CODEX STAN 192-1995) shall apply.	
Cauliflower	
Citric acid or malic acid, as processing aids for use in the blanching or cooling water.	In accordance with GMP.
Carry-Over Principle	
Section 4.1 of the *General Standard for Food Additives* (CODEX STAN 192-1995) shall apply.	
Carrots	
4.1 Processing Aids Maximum Levels	
Citric Acid	Limited by GMP
Sodium Hydroxide	Limited by GMP
4.2 Carry-over Principle	
Section 4.1 of the *General Standard for Food Additives* (CODEX STAN 192-1995) shall apply.	
Brussels sprouts	None Permitted
Carry-Over Principle	
Section 4.1 of the *General Standard for Food Additives* (CODEX STAN 192-1995) shall apply.	
Citric acid (INS 330) used as antioxidant during blanching operation.	
Whole Kernel corn	
4.1 Citric or malic acid, as processing aids for use in the blanching or cooling water	In accordance with GMP.
4.1 Carry-over principle	
Section 4.1 of the *General Standard for Food Additives* (CODEX STAN 192-1995) shall apply.	

[1] Temporarily endorsed.

Green Beans & Wax beans None permitted.

Carry-Over Principle

Section 4.1 of the General Standard for Food Additives (CODEX STAN 192-1995) shall apply.

PROCESSING AIDS

Citric acid (INS 330) used as antioxidant during blanching operation.

Corn-on-the-Cob

Citric or malic acid, as processing aids for use in the blanching or cooling water	In accordance with GMP.

Carry-Over Principle

"Section 3[2]" of the "Principle relating to the Carry-Over of Food Additives into Foods" as set forth in Volume 1 of the Codex Alimentarius shall apply.

French Fried Potatoes

Sequestrants

Disodium dihydrogen pyrophosphate)	
Tetrasodium pyrophosphate) Ethylene diamine tetra-acetic acid)	100 mg/kg singly or in combination (phosphates expressed as P_2O_5)
(Ca-diNa salt)	)
Ascorbic acid	)
Citric acid	) Limited by GMP
Malic acid	)

Processing Aids

Sulphite, bisulphite, metabisulphite) (sodium or potassium salt))	50 mg/kg, singly or in combination, expressed as SO_2
Sodium hydroxide	)
Potassium hydroxide	) Limited by GMP
Citric acid	)
Dimethylpolysiloxane	10 mg/kg on a fat basis

4.3 Carry-Over Principle

Section 4.1 of the *General Standard for Food Additives* (CODEX STAN 192-1995) shall apply.

CODEX STAN 192-1995 GSFA

4.1 CONDITIONS APPLYING TO CARRY-OVER OF FOOD ADDITIVES FROM INGREDIENTS AND RAW MATERIALS INTO FOODS

Other than by direct addition, an additive may be present in a food as a result of carry-over from a raw material or ingredient used to produce the food, provided that:

(a) The additive is acceptable for use in the raw materials or other ingredients (including food additives) according to this Standard;

(b) The amount of the additive in the raw materials or other ingredients (including food additives) does not exceed the maximum use level specified in this Standard;

(c) The food into which the additive is carried over does not contain the additive in greater quantity than would be introduced by the use of raw materials, or ingredients under proper technological conditions or manufacturing practice, consistent with the provisions of this standard.

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2 This reference can't be found.

Codex Format for Food Additives Section in Commodity Standards

Note: Based on the current food additive provisions and taking into account a possible reference to Tables 1/2 and/or 3 of the GSFA including processing aids the format below should be followed. The text on flavourings and carry over reflects the way CCFA/CAC recommends these should be included in commodity standards. There is no agreed format for processing aids and the one proposed corresponds to the approach taken in the General Standard for Fruit Juices and Nectars (CODEX STAN 247-2005).

4. FOOD ADDITIVES

4.1 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.

4.2 [Food additive functional class(es)] used in accordance with Tables 1 and 2 of the *Codex General Standard for Food Additives (CODEX STAN 192-1995)* in *Food Category 0.4.2.2.1 Frozen Vegetables (including mushrooms and fungi, roots and tubers, pulses and legumes, and aloe vera), seaweeds, and nuts and seeds*, are acceptable for use in food conforming to this Standard.

4.3 In addition, the following food additives apply to the products covered by the Standard:

4.3.1 [Functional Class].

INS No.	Name of the Food Additive	Maximum Level

4.3.2 [Functional Class]

INS No.	Name of the Food Additive	Maximum Level

4.3.3 [Functional Class]

INS No.	Name of the Food Additive	Maximum Level

4.3.2 **Flavourings**

Flavourings as defined in Section 2.2 of the *Codex Guidelines for the Use of Flavourings (CAC/GL 66-2008)*.	At GMP level

4.4 **Carry-over Principle**

Other than by direct addition, an additive present in the product as a result of carry-over from a raw material or ingredient used to produce the product shall be in accordance with Section 4.1 of the *Codex General Standard for Food Additives (CODEX STAN 192- 1995)*.

5. PROCESSING AIDS – Maximum level of use in accordance with GMP

Substance		Function
Citric, acid	for quick frozen cauliflower, whole kernel corn and corn-on-the-cob.	for use in the blanching or cooling water.
Malic, acid		
Citric, acid	(for quick frozen carrots only)	
Sodium, hydroxide		

APPENDIX IV

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APPENDIX V

GENERAL GUIDANCE FOR THE PROVISION OF COMMENTS

In order to facilitate the compilation and prepare a more useful comments' document, Members and Observers, which are not yet doing so, are requested to provide their comments under the following headings:

(i) General Comments

(ii) Specific Comments

Specific comments should include a reference to the relevant section and/or paragraph of the document that the comments refer to.

When changes are proposed to specific paragraphs, Members and Observers are requested to provide their proposal for amendments accompanied by the related rationale. New texts should be presented in underlined/bold font and deletion in ~~strikethrough font~~.

In order to facilitate the work of the Secretariats to compile comments, Members and Observers are requested to refrain from using colour font/shading as documents are printed in black and white and from using track change mode, which might be lost when comments are copied/pasted into a consolidated document.

In order to reduce the translation work and save paper, Members and Observers are requested not to reproduce the complete document but only those parts of the texts for which any change and/or amendments is proposed.