

CODEX ALIMENTARIUS

INTERNATIONAL FOOD STANDARDS



Food and Agriculture
Organization of
the United Nations



World Health
Organization

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STANDARD FOR QUICK FROZEN GREEN BEANS AND QUICK FROZEN WAX BEANS

CXS 113-1981

Adopted in 1981.

1. SCOPE

This Standard shall apply to quick frozen green beans and quick frozen wax beans from suitable varieties of the species *Phaseolus vulgaris* L. and quick frozen green beans from suitable varieties of the species *Phaseolus coccineus* L. as defined below and offered for direct consumption without further processing, except for size-grading or repacking, if required. It does not apply to the product when indicated as intended for further processing or for other industrial purposes.

2. DESCRIPTION

2.1 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. Quick Frozen Wax 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. 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.

2.2 Process Definition

2.2.1 Quick frozen green and quick frozen wax beans are the products subjected to a freezing process in appropriate equipment and complying with the conditions laid down hereafter. This freezing operation shall be carried out in such a way that the range of temperature of maximum crystallization is passed quickly. The quick freezing process shall not be regarded as complete unless and until the product temperature has reached -18°C (0°F) at the thermal centre after thermal stabilization.

2.2.2 The recognized practice of repacking quick frozen products under controlled conditions is permitted.

2.3 Handling Practice

The product shall be handled under such conditions as will maintain the quality during transportation, storage and distribution up to and including the time of final sale. It is recommended that during storage, transportation, distribution and retail, the product be handled in accordance with the provisions in the Code of Practice for the Processing and Handling of Quick Frozen Foods (CXC 8-1976).

2.4 Presentation

2.4.1 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.

2.4.2 Style

2.4.2.1 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 percent 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 percent 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° to the longitudinal axis in which 70 percent by count of the units are more than 6 mm long.
- (e) **Sliced:** pods sliced lengthwise or at an angle up to approximately 45° to the longitudinal axis, with a maximum thickness of 7 mm.

2.4.2.2 Other Styles

Any other style of presentation shall be permitted provided that it:

- (a) is sufficiently distinctive from other forms of presentation laid down in this Standard;
- (b) meets all other requirements of this standard;
- (c) is adequately described on the label to avoid confusing or misleading the consumer.

2.4.3 Colour

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.

2.4.4 Form

2.4.4.1 Quick frozen green beans and quick frozen wax beans may be presented as free-flowing (i.e. in which the individual units are not adhering to one another) or non-free flowing (i.e. as a solid block).

2.4.4.2 Tolerances for "free flowing": When the product is presented as "free flowing" a tolerance of 10 percent (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.

2.4.5 Sizing

2.4.5.1 Quick frozen whole and cut green beans and wax beans may be presented sized or unsized.

2.4.5.2 If round type beans are presented as size graded on diameter, they shall conform when measured in the frozen conditions, to the following system of specifications for the size names:

Size Designations	Bean Pod Diameter in mm measured by passing through parallel bars
Extra small	up to 6.5
Very small	up to 8
Small	up to 9.5
Medium	up to 11
Large	over 11

2.4.5.3 Tolerance for Sizes

If presented as size graded, the product shall contain not less than 80 percent by number of bean pods of the declared size or smaller sizes. Of the 20 percent 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.

2.4.6 Standard Sample Size (for presentation)

2.4.6.1 The standard sample size for "free flowing" shall be the entire contents of the pack or as large a quantity as is practicable.

2.4.6.2 The standard sample size for sizing shall be one kilogramme.

2.4.7 Definition of "Defective" for Presentation

Any sample unit from a sample taken in accordance with an appropriate sampling plan with an AQL 6.5 (see relevant Codex texts on methods of analysis and sampling) shall be regarded as "defective" for the respective characteristics when:

- (a) the requirement for free-flowing in section 2.4.4 is not complied with;
- (b) the sizing requirements in section 2.4.5 are not complied with.

2.4.8 Lot Acceptance for Presentation Factors

A lot is considered as acceptable with respect to free flowing and sizing when the number of "defectives" as defined in sections 2.4.4 and 2.4.5 does not exceed the acceptance number (c) of an appropriate sampling plan with an AQL of 6.5 (see relevant Codex texts on methods of analysis and sampling).

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS**3.1 Optional Ingredients**

- (a) Sugars (sucrose, invert sugar, dextrose, fructose, glucose syrup, dried glucose syrup)
- (b) Salt (sodium chloride)
- (c) Condiments, such as spices and herbs

3.2 Quality Factors

3.2.1 General Requirements

Quick frozen beans shall be:

- of a reasonably uniform colour
- free from foreign flavour and odour taking into account any added optional ingredients
- clean and free from foreign material

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

- reasonably free from extraneous vegetable material (EVM)
- reasonably free from stem ends
- reasonably free from damage by insects or disease
- reasonably free from mechanically damaged units
- for whole beans normally developed
- reasonably free from tough strings and fibrous units
- without excessive small pieces

3.2.2 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, EVM comprising bean leaf material will be differentiated from other EVM.
- (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.
- (c) **Major Blemish:** each piece blemished due to insect or pathological damage affecting an area greater than a 6 mm diameter circle, 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 but less than a 6 mm diameter circle, or blemished by other means to a degree which noticeably 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 relevant Codex texts on methods of analysis and sampling.
- (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) **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.

3.2.3 Standard Sample Size

Standard sample size is 1 kilogramme for EVM and stem ends, and 300 grams for other defect categories.

3.2.4 Tolerances for Visual Defects

For tolerance based on the standard sample size indicated in section 3.2.3, 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.

Defect	Category 1	Category 2	Category 3	Total
(a) EVM (i) Bean Leaf (each piece)	1			
(ii) Other EVM (each piece)	2			
(b) Stem end	1			
(c) Major blemish		3		
(d) Minor blemish		1		
(e) Mechanical damage (Whole and cut sizes)		1		
(f) Undeveloped (Whole style)		2		
(g) Tough strings			3	
(h) Fibrous unit			1	
Total Allowable Points				
(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 percent m/m				

3.3 Definition of "Defective" for Quality Factors

Any sample unit from a sample taken in accordance with an appropriate sampling plan with an AQL 6.5 (see relevant Codex texts on methods of analysis and sampling) shall be regarded as "defective" for the respective characteristics when:

- (a) any one of the general requirements in section 3.2.1 is not complied with;
- (b) the total in section 3.2.4 (a) to (h) exceeds the Total Allowable Points in any of the respective defect categories;
- (c) the tolerance for small pieces is exceeded.

3.4 Lot Acceptance for Quality Factors

A lot is considered acceptable when the number of "defectives" as defined in section 3.3 does not exceed the acceptance number (c) of an appropriate sampling plan with an AQL of 6.5 (see relevant Codex texts on methods of analysis and sampling). In applying the acceptance procedure each "defective" (sub-paragraph (a) to (c) of 3.3) is treated individually for the respective characteristics.

4. FOOD ADDITIVES

None permitted.

4.1 Carry-Over Principle

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

5. HYGIENE

5.1 It is recommended that the product covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the *General Principles of Food Hygiene* (CXC 1-1969), and other Codes of Practice recommended by the Codex Alimentarius Commission which are relevant to this product.

5.2 To the extent possible in Good Manufacturing Practice, the product shall be free from objectionable matter.

5.3 When tested by appropriate methods of sampling and examination, the product:

- shall be free from microorganisms in amounts which may represent a hazard to health;
- shall be free from parasites which may represent a hazard to health; and
- shall not contain any substance originating from microorganisms in amounts which may represent a hazard to health.

6. LABELLING

6.1 In addition to the requirements of the *General Standard for the Labelling of Prepackaged Foods* (CXS 1-1985), the following specific provisions apply:

- 6.1.1** The name of the product, as declared on the label, shall include "green beans" or "wax beans" as applicable. The words "quick frozen" shall also appear on the label, except that the term "frozen"¹ may be applied in countries where this term is customarily used for describing the product processed in accordance with Section 2.2 of this Standard.
- 6.1.2** In addition, there shall appear on the label in conjunction with, or in close proximity to, the words "green beans" or "wax beans": the style, as appropriate, "whole", "cut", "short cut", "diagonal cut", or "sliced".
- 6.1.3** If the product is produced in a style other than that shown in 2.4.2.1 the label shall contain in close proximity to the words "green beans" or "wax beans", such additional words or phrases that will avoid misleading or confusing the consumer.
- 6.1.4** Where a characterising ingredient has been added, this shall be stated as "with x", as appropriate.
- 6.1.5** A statement regarding type ("round" or "flat") may be made if customary in countries in which the product is sold.

6.2 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.

6.3 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.

6.4 Bulk Packs

In the case of quick frozen green beans or wax beans in bulk, the information required above shall either be placed on the container or be given in accompanying documents, except that the name of the food accompanied by the words "quick frozen" (the term "frozen" may be used in accordance with Section 6.1.1 of this Standard) the name and address of the manufacturer or packer shall appear on the container.

7. PACKAGING

7.1 Packaging used for quick frozen beans or wax beans must:

- (a) protect the organoleptic and other quality characteristics of the product;
- (b) protect the product against microbiological and other contamination;
- (c) protect the product from dehydration and, where appropriate, leakage as far as technologically practical; and
- (d) not pass on to the product any odour, taste, colour or other foreign characteristics throughout the processing (where applicable) and distribution of the product up to the time of final sale.

8. METHODS OF ANALYSIS AND SAMPLING

For checking the compliance with this Standard, the methods of analysis and sampling contained in the *Recommended Methods of Analysis and Sampling* (CXS 234-1999) relevant to the provisions in this Standard shall be used.

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