

CODEX STANDARD FOR CANNED CARROTS
CODEX STAN 116-1981

1. DESCRIPTION

1.1 Product Definition

Canned carrots is the product (a) prepared from clean, sound roots of carrot varieties (cultivars) conforming with the characteristics of the species *Daucus carota* L. from which the leaves, green tops and peel have been removed; (b) packed with water or other suitable liquid medium, which may contain nutritive sweeteners, seasonings and other ingredients, appropriate to the product; and (c) processed by heat in an appropriate manner before or after being sealed in a container so as to prevent spoilage.

1.2 Varietal types

Any suitable variety (cultivar) of carrot may be used.

1.3 Styles

(a) **Whole**

- (i) Conical or cylindrical cultivars (e.g. Chantenay and Amsterdam varieties) - consist of carrots which, after processing, retain their approximate original conformation. The largest diameter of carrots, measured at right angles to the longitudinal axis shall not exceed 50 mm. The variation in diameter between the largest carrot and smallest carrot shall not exceed 3:1.
- (ii) Spherical cultivars ("Paris" carrots) - consist of fully mature carrots of a roundish shape of which the largest diameter in each direction shall not exceed 45 mm.

(b) **Baby Whole**

- (i) Conical or cylindrical cultivars - consist of whole carrots which have a diameter of not more than 23 mm and are not longer than 100 mm.¹
- (ii) Spherical cultivars - consist of whole carrots which have a diameter of not more than 18 mm in any direction.

(c) **Halved:** carrots bisected by cutting through the longitudinal axis so that two approximately equal halves result.

(d) **Quartered:** carrots cut into four approximately equal sections by two cuts at right angles through the longitudinal axis.

(e) **Sliced lengthwise:** consist of carrots which have been sliced longitudinally, either

¹ To avoid possible confusion to consumers in some countries where the English language is used, arising from the use of the style designation "Baby whole", an alternative designation may be required by a country on accepting the standard.

smooth or corrugated, into four or more pieces of approximately equal size. Not less than 20 mm long and not less than 5 mm in width measured at the maximum width.

- (f) **Sliced or Ring cut:** consist of carrots which have been cut, either smooth or corrugated, at right angles to the longitudinal axis, into rings having a maximum thickness of 10 mm and a maximum diameter of 50 mm.
- (g) **Diced:** consist of carrots cut into approximate cubes with edges not exceeding 12.5 mm.
- (h) **Julienne, French style, or Shoestring:** consist of carrots cut longitudinally, either smooth or corrugated, into strips. The cross section shall not exceed 5 mm (measured at the longest side of the cross section).
- (i) **Double diced:** sections of carrots cut into uniformly shaped units having a cross section that is square and of which the longest dimension is approximately twice that of the shortest dimension - the shortest dimension not exceeding 12.5 mm.
- (j) **Chunks or pieces:** whole carrots cut crosswise into sections having a thickness greater than 10 mm or whole carrots which are halved and then cut crosswise into sections or sections of carrots that may be irregular in shape and size and which are larger than ring cut or double diced.
- (k) **Finger cut:** sections of whole carrots cut into pieces not less than 40 mm long and a diameter not more than 23 mm.

1.4 Other Styles

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

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

1.5 Types of Pack

- (a) "Liquid pack" when a liquid medium is used; or
- (b) "Vacuum pack" or "Vacuum packed" if the liquid packing medium does not exceed 20 percent of the total net weight of the product and the container is closed under conditions creating a high vacuum in the container.

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 Basic ingredients

Carrots and liquid packing medium appropriate to the product.

2.2 Optional ingredients

- (a) Salt (sodium chloride).
- (b) Sucrose, invert sugar syrup, dextrose, glucose syrup, dried glucose syrup, fructose, and fructose syrup.
- (c) Aromatic herbs and spices; stock or juice of vegetables and aromatic herbs (lettuce, onions, etc.; garnishes composed of one or more vegetables (lettuce, onions, pieces of green or red peppers, or mixtures of both) up to a maximum of 10% of the total drained vegetable ingredient.
- (d) Butter, margarine or other edible animal or vegetable fats or oils. If butter or margarine is added, such butter or margarine must amount to not less than 3% of the final product (total contents).
- (e) Cheese sauce - containing cheese in amounts to give the sauce the characteristic taste of the cheese used.
- (f) Starches - natural (native), physically or enzymatically modified - only when butter or other edible animal or vegetable fats or oils are ingredients (see section 3.1).

2.3 Quality Criteria

2.3.1 Colour

The colour of the product, including the packing medium, shall be normal.

2.3.2 Flavour

Canned carrots shall have a normal flavour and odour free from flavours or odours foreign to the product.

2.3.3 Texture

The carrot units shall be reasonably free from units that are excessively fibrous or tough.

2.3.4 Defects and Allowances

Canned carrots shall be reasonably free from defects and shall not exceed the limits set herein for the respective defects:

- (a) **Extraneous Vegetable Material** - consisting of any leaf or plant material from the carrot plant or other harmless plant material not purposely added as an ingredient.

Allowance - 1 piece per 1000 grammes based on total contents of all the containers in the sample (i.e. Sample Average).

- (b) **Other Defects** - defects other than EVM shall comply with the limitations as set forth in Table I and Table II for the respective styles.

The sample unit size for "Other Defects" is as follows:

- (i) Whole - 40 units
- (ii) Baby whole, Halves, Quartered, Sliced lengthwise, Chunks, finger cuts - 80 units
- (iii) Diced, Doubled diced, Julienne, Sliced or Ring cut styles - 400 grammes drained weight.

TABLE I

Whole, Baby Whole, Halved, Quartered, Sliced Lengthwise, Chunks, Finger Cuts			
DEFECT	CATEGORY		
	Minor	Major	Serious
(a) Blemished - spotted or discoloured areas - up to 30 mm ² - 30 mm ² up to 200 mm ² - 200 mm ² , or any very dark or black exceeding 30 mm ²	x	x	x
(b) Mechanical - damaged by crushing or fraying during canning - slightly frayed - crushed or broken or showing cracks	x	x	
(c) Misshapen - abnormal distortion or growth cracks - slightly affected - materially affected	x	x	
(d) Unpeeled - unpeeled areas - slightly affected - materially affected	x	x	
(e) Fibrous - units that are tough or woody due to fibre development - slightly affected - materially affected - seriously affected (woody)	x	x	x
(f) Green - units with green tops, except "Baby Whole" and "Whole Style" - slightly affected - materially affected	x	x	

"Whole Style"

- materially affected

x

Allowance for Defects (Maximum Number Permitted)

Baby Whole, halved, Quartered, Sliced Lengthwise, Chunks, Finger Cuts

Sample of 80 Units - Total of all defects 13 per sample unit, provided that not more than 10 are major and serious combined, and further provided that not more than 1 is serious.

Whole

Sample of 40 Units - Total of all defects 13 per sample unit, provided that not more than 5 are major and serious combined, and further provided that not more than 1 is serious.

TABLE II

Diced, Double-diced, Julienne, and Sliced Ring Cut Styles

Definition of Defects

- (a) **Disintegrated unit** is a unit deformed or disintegrated to the extent that the original shape is destroyed or not recognizable.
- (b) **Blemished unit** is a unit with dark or green spots, or pieces of peel, to the extent that the appearance or eating quality is seriously affected.
- (c) **Fibrous unit** is a unit with a fibrous texture to the extent that the eating quality is seriously affected.

Allowance for Defects

Total of all defects - 50 grams per 400 gram sample unit, provided that no single defect ((a), (b) or (c) above) exceeds 25 grams per sample unit.

2.3.5 Classification of "defectives"

A sample unit that exceeds the allowance provisions applicable to Tables I and II (section 2.2.4) or other quality criteria (sections 2.3.1-2.3.3) shall be considered a "defective".

2.3.6 Acceptance

A lot will be considered as meeting the applicable quality requirements referred to in section 2.3 when the number of "defectives", as defined in section 2.3.5, does not exceed the acceptance number (c) of the appropriate sampling plan (AQL-6.5) in the Joint FAO/WHO Codex Alimentarius Sampling Plans for Prepackaged Foods (CAC/RM 42-1969) (see Codex Alimentarius Volume 13), and does not exceed the allowance provisions for harmless extraneous material which is based on the sample average (section 2.3.4(a)).

3. FOOD ADDITIVES

3.1 Thickening agents

To be used only when butter or other animal or vegetable fats or oils are used as ingredients, as in a "sauce pack".

		Maximum Level
3.1.1 Modified starches		
Acid-treated starches)	
Alkali-treated starches)	
Bleached starches)	
Distarch phosphate)	
Distarch phosphate, phosphated)	
Monostarch phosphate)	
Starch acetate)	10 g/kg, singly or in
combination ¹		
Starch, hydroxypropyl)	
Distarch adipate, acetylated)	
Distarch glycerol, hydroxypropyl)	
Distarch phosphate, acetylated)	
Distarch glycerol, acetylated)	
Distarch glycerol)	
Oxidized starches)	
Distarch phosphate, hydroxypropyl)	
3.1.2 Vegetable gums		
Arabic gum)	
Carrageenan)	10 g/kg singly, or in combination ¹
Guar gum)	
Carobbean (Locust bean) gum)	
3.1.3 Alginates		
Ammonium alginate)	
Calcium alginate)	
Potassium alginate)	10 g/kg singly, or in combination ¹
Sodium alginate)	
Propylene glycol alginate)	
3.1.4 Pectins		10 g/kg singly, or in combination ¹
4. CONTAMINANTS		
Lead (Pb)	1 mg/kg	
Tin (Sn)	250 mg/kg, calculated as Sn	
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 Recommended International Code of Practice - General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 2 (1985) Codex Alimentarius Volume 1), and other Codes of Practice recommended by the Codex Alimentarius Commission which are relevant to this product.		

¹ The maximum level refers to an overall maximum level for thickening agents.

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.

5.4 The product shall have received a processing treatment sufficient to destroy all spores of *Clostridium botulinum*.

6. WEIGHTS AND MEASURES

6.1 Fill of Container

6.1.1 Minimum Fill

The container shall be well filled with carrots and except for "vacuum pack" carrots, the product (including packing medium) shall occupy not less than 90% of the water capacity of the container. The water capacity of the container is the volume of distilled water at 20°C which the sealed container will hold when completely filled.

6.1.2 Classification of "defectives"

A container that fails to meet the requirement for minimum fill (90 percent container capacity) of section 6.1.1 shall be considered a "defective".

6.1.3 Acceptance

A lot shall be considered as meeting the requirement of section 6.1.1 when the number of "defectives" does not exceed the acceptance number (c) of the appropriate sampling plan (AQL-6.5) in the Joint FAO/WHO Codex Alimentarius Sampling Plans for Prepackaged Foods (CAC/RM 42-1969) (see Codex Alimentarius Volume 13).

6.2 Minimum drained weight

6.2.1 The drained weight of the product, as a percent by weight of the water capacity of the container, except for sauce packs, shall be not less than:

Style	Containers 850 ml or less	Containers more than 850 ml
Whole (Paris type)	50	55
Whole	53	57
Halved, Baby Whole	55	57
Sliced Lengthwise	58	57
Diced, Double Diced	58	57
Julienne or Shoestring	53	57
Quarters, Chunks, Sliced	58	60
Finger Cut	62	65

6.2.2 The requirement for minimum drained weight in section 6.2.1 shall be deemed to be complied with when the average drained weight of all containers examined is not less than the minimum required, provided that there is no unreasonable shortage in individual containers.

7. LABELLING

In addition to the requirements of the Codex General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985 (Rev. 1-1991) Codex Alimentarius Volume 1), the following provisions apply:

7.1 The Name of the Food

7.1.1 The name of the product shall be "Carrots".

7.1.2 The style, as appropriate, shall be declared as part of the name or in close proximity to the name: "Whole", "Baby Whole", "Sliced Lengthwise", "Finger Cut", "Ring Cut", "Diced", "Julienne", "French Style", "Shoestring", "Double Diced", "Chunks", "Pieces", "Sliced", "Cuts", "Halved", "Quartered".

7.1.3 **Other styles:** If the product is produced in accordance with the other styles provision (subsection 1.4), the label shall contain in close proximity to the name of the product such additional words or phrases that will avoid misleading or confusing the consumer.

7.1.4 The name of the product may include the variety or type of the carrots used or the phrase "crinkle cut" to describe the corrugated cut or slice, except that the variety "Paris carrot" shall be declared as "Round" carrots.

7.1.5 A declaration of any special sauce, vegetable and/or seasoning which characterizes the product, e.g. "With X" or "In X", when appropriate shall be made. If margarine is used, the declaration shall be "In Margarine Sauce". If the declaration is "With (or "In) Butter Sauce", the fat used shall only be butter fat. If cheese sauce is used, the declaration shall be "In Cheese Sauce" where the variety name of the cheese may accompany the word "cheese".

7.1.6 If canned carrots are vacuum packed, this fact shall be declared on the label as "vacuum pack" or "vacuum packed".

8. METHODS OF ANALYSIS AND SAMPLING

See Codex Alimentarius Volume 13.