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إعداد اللجنة الخليجية رقم TC05

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الجزر المجمد  
Frozen carrot

ICS: 67.080

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**Foreword**

GCC Standardization Organization (GSO) is a regional Organization which consists of the National Standards Bodies of GCC member States. One of GSO main functions is to issue Gulf Standards /Technical regulations through specialized technical committees (TCs).

GSO through the technical program of committee TC No (5) " Technical committee for standards of food and agriculture products " has prepared this Technical regulation. The Draft Technical regulation has been prepared by State of Kuwait. The draft Technical regulation has been prepared based on relevant ADMO, International and National foreign Standards and references.

This Technical regulation has been approved by GSO Board of Directors in its meeting No.( ), held on 00/00/0000h (00/00/0000) .

**FROZEN CARROTS****1. SCOPE AND FIELD OF APPLICATION**

This Gulf Standard apply basic requirements and standards descriptive of the islands of frozen carrot prepared for direct consumption without additional manufacturing with the exception of re-packing.

**2. Complementary references**

- 2.1 GSO 9 “Labelling of prepackaged foods”.
- 2.2 GSO 1287 “Methods of Sampling of Prepackaged Fruit and Vegetable Products”.
- 2.3 GSO 20 “Methods for the Determination of Contaminating Metallic Elements”.
- 2.4 GSO 21 “Hygienic Regulations for Food Plants and their Personnel”.
- 2.5 GSO 244 “Methods of Test for Vegetables, Fruits and their Products, Part 1: Organoleptic Examination, Determination of net Weight and Drained Weight, Determination of Apparent Viscosity, Determination of Head-space, Determination of Extraneous Matter and Defective Fruits”.
- 2.6 GSO 150 “Expiration Periods for Food Products – part 2”
- 2.7 GSO 323 “General Requirements for Transportation and Storage of Chilled and Frozen Foods”.
- 2.8 GSO 382 “Maximum Limits for Pesticide Residues in Agricultural and Food Products – Part 1”.
- 2.9 GSO 383 “Maximum Limits for Pesticide Residues in Agricultural and Food Products – Part 2”.
- 2.10 GSO 839 “Food Packages – Part 1: General Requirements”.
- 2.11 GSO 988 “Radiation Levels Allowed in Foodstuffs – Part 1”.
- 2.12 GSO 998 “Methods of Detecting Radiation Levels Allowed in Foodstuffs – Part 1: Spectrophotometric Analysis of Gamma Radiation”.
- 2.13 GSO 1016 “Microbiological Limits of Food Articles and Foodstuffs – Part 1”.

- 2.14 GSO (229) " " Analysis of pesticide residues : recommended methods
- 2.15 GSO /CAC 193 " General Standard for contaminants & toxins in food "

### 3. DEFENITIONS

- 3.1 Frozen carrots: Food product prepared from fresh, clean, sound roots of carrot varieties conforming with the characteristics of the species *Daucus carota L.* from which the leaves, green tops, peel, and secondary roots have been removed and which have been washed and may or may not be blanched.
- 3.2 Quick freezing: The process of subjecting the product to freezing in appropriate equipment. 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 has reached  $-18^{\circ}\text{C}$  at the thermal centre after thermal stabilization.
- 3.3 Green tops: Green parts in carrots roots.
- 3.4 Extraneous Vegetable Material (EVM): Harmless vegetable materials which does not consist of carrot roots.
- 3.5 Misshapen: Units showing branching, twisting or other forms of distortion which detract seriously from the appearance of the products (styles: whole and finger).
- 3.6 Major Blemishes: Units with one or more black, dark brown and other intensely discolored areas due to disease, insect damage, inadequate tapping or physiological factors covering an area or aggregates area greater than that of a circle 6 mm in diameter, which detract in a major way from the appearance of the product.
- 3.7 Blemishes: As in item 3-6 but the diameter should be greater than 3 mm and smaller than 6 mm, other types of discoloration which detracts noticeably but not in major way from the appearance of the product.
- 3.8 Unpeeled: Units showing noticeable unpeeled areas larger than a circle of 6 mm diameter.
- 3.9 Damaged: Units which are crushed or broken.
- 3.10 Cracked: Crackers greater than 2 mm wide or other splits which detract materially from the appearance of the products (styles: whole and finger).

- 3.11 Greening: Units showing green coloration extending down the shoulder or green ring at the top (whole and finger styles) and units with green discolouration (other styles).
- 3.12 Small pieces: Units less than 25 mm long for the styles “whole, conical and cylindrical”, “finger”, “halved”, “quartered” and “shoestring or julienne” units less than one third the volume of the standard product of the other styles.
- 3.13 Woody: the core of the carrot is not tender, but has tough, woody texture; it separates very easily from the outer flesh.

#### 4. STYLES

##### 4.1 Whole

- 4.1.1 Conical and cylindrical cultivars (e.g. Chantenay and Amsterdam types) consist of carrots which, after processing, retain the approximate conformation of a whole carrot. The shortest diameter at the greatest circumference measured at right angle to the longitudinal axis shall not exceed 50 mm. The variation in diameter between the largest and smallest carrot shall not exceed 4:1.
- 4.1.2 Spherical cultivars (e.g. Paris type) consist of fully mature carrots of a round shape of which the largest diameter in any direction shall not exceed 45 mm.

- 4.2 Finger: Carrots of the cylindrical type, including sections obtained thereof by transverse cutting, being not less than 30 mm long.
- 4.3 Halved: Carrots cut longitudinally into two approximately equal halves.
- 4.4 Quartered: Carrots cut longitudinally into four approximately equal sections.
- 4.5 Sliced length wise: Carrots sliced approximately longitudinally, either smooth or corrugated into four or more units of approximately equal size not less than 20 mm long and not less than 5 mm in width measured at the maximum width.
- 4.6 Shoestring or julienne: Carrots cut longitudinally, either smooth or corrugated, into strips. The cross section shall not exceed 9.5 mm (measured at the longest side of the cross section).
- 4.7 Sliced or ring cut or roundels: Carrots cut, either smooth or corrugated, at right angle to the longitudinal axis into sections,

having a minimum thickness of 2 mm, a maximum thickness of 10 mm and a maximum diameter of 50 mm.

4.8 Pieces: Carrots cut cross-wise into slices having a thickness greater than 10 mm but less than 30 mm or whole carrots which are halved and then cut cross-wise into section or sections of carrots that may be irregular in shape and size and which are larger than ring cut or double diced.

4.9 Diced: Carrots cut into cubes with edges not exceeding 12.5 mm.

4.10 Double dice: 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 dimensions not exceeding 12.5 mm.

4.11 Other styles

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

4.11.1 It shall be sufficiently distinctive from other forms of presentation laid down in this standard.

4.11.2 It shall meet all other requirements of this standard and not confusing or misleading the consumer.

4.11.3 It shall be labeled adequately to avoid mixing or misleading the consumer.

4.12 Tolerance for styles

A tolerance of 10% by weight of non-conforming units applies to the whole style and 20% for all other styles.

## 5. SIZING

5.1 Cylindrical, conical and spherical cultivators shall be size-graded as follows:

5.1.1 Cylindrical cultivators

<u>Size designation</u>	<u>Diameter</u>
Small	6 – 23 mm
Medium	23 – 27 mm
Large	Greater than 27 mm

## 5.1.2 Conical cultivators

<u>Size designation</u>	<u>Diameter</u>
Small	10 – 30 mm
Medium	30 – 36 mm
Large	Greater than 36 mm

## 5.1.3 Spherical cultivators

<u>Size designation</u>	<u>Diameter</u>
Very small	Less than 18 mm
Small	Between 18 and 22 mm
Medium	Between 22 and 27 mm
Large	Between 27 and 35 mm
Extra large	Over 35 mm

## 5.2 Tolerance for size

If presented size graded the product shall contain not less than 80% by mass of carrots of the declared size.

**6. REQUIREMENTS**

- 6.1 Carrots shall be of a reasonable uniform colour conforming to the colour characteristics of the variety.
- 6.2 Shall be clean and sound.
- 6.3 Shall have a normal flavour and odour, free from foreign flavour and odour, taking into consideration added optional ingredients.
- 6.4 Shall be free from objectionable tough parts.
- 6.5 Shall not be misshapen (this regards whole and finger carrot style only).
- 6.6 Shall be reasonably free from blemishes.
- 6.7 Shall be reasonably free from mechanical damage (this regards whole and finger carrot style only).

- 6.8 Shall be reasonably free from green tops.
- 6.9 Shall be reasonably free from extraneous vegetable materials.
- 6.10 Shall be reasonably free from unpeeled areas.
- 6.11 These optional ingredients can be added:
- 6.11.1 Salt (sodium chloride), sucrose, invert sugar syrup, dextrin, glucose syrup, dried glucose syrup, fructose, fructose syrup, citric acid, sodium hydroxide according to good manufacturing practice .
  - 6.11.2 Aromatic Herbs and spices, stock or juice of vegetables and aromatic Herbs, garnishes composed of one or more vegetables (e.g. lettuce, onion, pieces of green or red peppers, or mixtures of both) up to a maximum of 10% m/m of the total drained vegetable ingredient.
- 6.12 Microbiological limits shall not exceed the limits given in GSO Standard mentioned in item (2.13).
- 6.13 Pesticide residues shall not exceed the limits given in GSO Standard mentioned in items (2.8) and (2.9).
- 6.14 Radiation levels shall not exceed the limits given in GSO Standard mentioned in item (2.11).
- 6.15 Contaminating metallic elements limits shall not exceed the limits given in GSO Standard mentioned in item (2.15).
- 6.16 Shall be free from preservation and synthetic colouring matters.
- 6.17 Shall be free from parasites insects and their parts.
- 6.18 It shall be prepared, processed and prepackaged under sanitary conditions in accordance with GSO Standard mentioned in item (2.4).
- 6.19 **Standard sample unit**
- 6.19.1 1000 gm for extraneous vegetable materials and small pieces.
  - 6.19.2 25 units for whole, finger, halved and quartered styles.
  - 6.19.3 400 gm for diced, double diced, shoestring, julienne, sliced or ring cut, sliced lengthwise and pieces styles.
- 6.20 Classification and tolerances for visual defects
- For tolerances based on the standard sample unit indicated in item (6.19) visual defects shall be assigned points in accordance with tables 1 and 2. The maximum number of points shall not exceed the



total allowed points given under categories A and B or the overall total.

**Table 1 – Whole, Finger, Halved and Quartered Styles**

<b>Defect</b>	<b>Percentage by number</b>	<b>Percentage by weight</b>
Misshapen	<b>3</b>	-
Major blemishes and unpeeled areas	<b>4</b>	-
Blemishes	<b>10</b>	-
Damaged and Cracked	<b>4</b>	-
Small pieces	-	<b>15</b>
Greening	<b>12</b>	-
EVM: Not to exceed 2 pieces or 1 g/1000 g.	-	-
woody	<b>1</b>	

**Total maximum allowance: 22% by number**

Table 2

**Ring cut, Sliced lengthwise, Diced, Double diced, Shoestring and Pieces**

Defect	Percentage by weight	
	Ring cut, sliced lengthwise	Diced, double diced, Shoestring and pieces
Misshapen	6	-
Major blemishes and unpeeled areas	4	5
Blemishes	10	12
Damaged and Cracked	4	10
Small pieces	15	20
Greening	12	-
EVM: Not to exceed 2 pieces or 1 g/1000 g.	-	-
woody	1	1

**Total maximum allowance: 20% by weight for diced, double diced, Shoestring and pieces, and 25% by weight for ring cut, sliced lengthwise.**

## 7. SAMPLING

Samples shall be taken according to GSO Standard mentioned in item (2.2).

## 8. TESTING

Shall be carried out on the representative sample taken according to item (7) to determine its compliance with all items of this standard.

8.1 Tests for determination of net weight, defective units and organoleptic examination shall be carried out according to GSO Standard mentioned in item (2.5).

8.2 Determination of pesticide residues shall be carried out according to GSO Standard mentioned in item (2.15).

8.3 Determination of contaminating metallic elements shall be carried out according to GSO Standard mentioned in item (2.3).

8.4 Detection of limits of radiation levels shall be carried out according to GSO Standard mentioned in item (2.12).

## **9. PACKAGING**

Without prejudice to what is stated in GSO Standard mentioned in item (2.10).

9.1 Packaging used for frozen carrots shall protect the organoleptic and other quality characteristics of the product.

9.2 Protect the product against microbiological and other contamination.

9.3 Protect the product from dehydration and leakage.

9.4 Not pass on to the product any odour, taste, colour or other foreign characteristics throughout the storage, handling and distribution of the product up to the time of final sale.

9.5 Bulk packages are allowed.

## **9.6 TRANSPORTATION AND STORAGE**

Without prejudice to what is stated in GSO Standard mentioned in item (2.7), the temperature of the product shall not exceed  $-18^{\circ}\text{C}$  during transportation and storage.

## **10. LABELLING**

Without prejudice to what is stated in GSO Standard mentioned in items (2.1) the following shall be declared on each packages.

10.1 Type and style of the product according to item (4).

10.2 Size according to item (5).

10.3 The phrase “should be kept at a temperature not exceeding  $-18^{\circ}\text{C}$  until consumed”.

10.4 Optional food additives added to the product with the percentage of each.

10.5 Expiration periods for product according to GSO standard mentioned in item (2.6).

- 10.6 In the case of quick frozen carrots in bulk the information shall either be placed on the container or be given in accompanying documents, except the name of the product and the name and address of the manufacturer or packer shall appear on the container.

**References:**

Codex Alimentarius Commission  
STANDARD FOR QUICK FROZEN VEGETABLES  
Codex Standard 320/2015