

CODEX ALIMENTARIUS

INTERNATIONAL FOOD STANDARDS



Food and Agriculture
Organization of
the United Nations



World Health
Organization

E-mail: codex@fao.org - www.codexalimentarius.org

CODEX STANDARD FOR QUICK FROZEN SHRIMPS OR PRAWNS

CODEX STAN 92-1981

Adopted 1981. Revised 1995. Amended 2011, 2013, 2014.

1. SCOPE

This standard applies to quick frozen raw or partially or fully cooked shrimps or prawns¹, peeled or unpeeled.

2. DESCRIPTION

2.1 Product Definition

Quick frozen shrimp is the product obtained from species of the following families:

- (a) *Penaeidae*
- (b) *Pandalidae*
- (c) *Crangonidae*
- (d) *Palaemonidae*

The pack shall not contain a mixture of genera but may contain a mixture of species of the same genus which have similar sensory properties.

2.2 Process Definition

The water used for cooking and cooling shall be of potable quality or clean seawater.

The product, after any suitable preparation, shall be subjected to a freezing process and shall comply with the conditions laid down hereafter. The freezing process shall be carried out in appropriate equipment 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 or colder at the thermal centre after thermal stabilization. The product shall be kept deep frozen so as to maintain the quality during transportation, storage and distribution.

Quick frozen shrimps shall be processed and packaged so as to minimize dehydration and oxidation.

2.3 Presentation

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

- meets all requirements of this standard; and
- is adequately described on the label to avoid confusing or misleading the consumer.

The shrimp may be packed by count per unit of weight or per package.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 Shrimp

Quick frozen shrimp shall be prepared from sound shrimp which are of a quality fit to be sold fresh for human consumption.

3.2 Glazing

If glazed, the water used for glazing or preparing glazing solutions shall be of potable quality or shall be clean sea-water. Potable water is fresh-water fit for human consumption. Standards of potability shall not be less than those contained in the latest edition of the WHO "International Guidelines for Drinking Water Quality". Clean sea-water is sea-water which meets the same microbiological standards as potable water and is free from objectionable substances.

3.3 Other Ingredients

The packing medium and all other ingredients used shall be of food grade quality and conform to all applicable Codex standards.

3.4 Final Product

Products shall meet the requirements of this standard when lots examined in accordance with Section 9 comply with the provisions set out in Section 8. Products shall be examined by the methods given in Section 7.

¹ Hereafter referred to as shrimp.

4. FOOD ADDITIVES

Only the use of the following additives is permitted.

Acidity Regulators

INS Number	Additive Name	Maximum Level in Product
330	Citric acid	GMP

Humectants – Moisture/Water Retention Agents

INS Number	Additive Name	Maximum Level in Product
339(i)	Sodium dihydrogen phosphate	2200 mg/kg as phosphorus, singly or in combination
339(ii)	Disodium hydrogen phosphate	
339(iii)	Trisodium phosphate	
340(i)	Potassium dihydrogen phosphate	
340(ii)	Dipotassium hydrogen phosphate	
340(iii)	Tripotassium phosphate	
341(i)	Calcium dihydrogen phosphate	
341(ii)	Calcium hydrogen phosphate	
341(iii)	Tricalcium phosphate	
450(i)	Disodium diphosphate	
450(ii)	Trisodium diphosphate	
450(iii)	Tetrasodium diphosphate	
450(v)	Tetrapotassium diphosphate	
450(vii)	Calcium dihydrogen diphosphate	
451(i)	Pentasodium triphosphate	
451(ii)	Pentapotassium triphosphate	
452(i)	Sodium polyphosphate	
452(ii)	Potassium polyphosphate	
452(iii)	Sodium calcium polyphosphate	
452(iv)	Calcium polyphosphate	
452(v)	Ammonium polyphosphate	
542	Bone phosphate	

Antioxidants

INS Number	Additive Name	Maximum Level in Product
300	Ascorbic acid (L-)	GMP

Colours

INS Number	Additive Name	Maximum Level in Product
124	Ponceau 4R	30 mg/kg in heat-treated products only

Preservatives

INS Number	Additive Name	Maximum Level in Product
221	Sodium sulphite	100 mg/kg in the edible part of the raw product, or 30 mg/kg in the edible part of the cooked product, singly or in combination, expressed as SO ₂
223	Sodium metabisulphite	

224	Potassium metabisulphite	
225	Potassium sulphite	

5. HYGIENE

It is recommended that the products covered by the provisions of this Standard be prepared and handled in accordance with the appropriate sections of the *General Principles of Food Hygiene* (CAC/RCP 1-1969), the *Code of Practice for Fish and Fishery Products* (CAC/RCP 52-2003), the *Code of Practice for Handling and Processing Quick Frozen Foods* (CAC/RCP 8-1976) and other relevant Codex Codes of Hygienic Practice and Codes of Practice.

The Products should comply with any microbiological criteria established in accordance with the *Principles and Guidelines for the Establishment and Application of Microbiological Criteria Related to Foods* (CAC/GL 21-1979).

6. LABELLING

In addition to the provisions of the *General Standard for the Labelling of Prepackaged Foods* (CODEX STAN 1-1985) the following specific provisions apply:

6.1 Name of the Food

The name of the product as declared on the label shall be "shrimps" or "prawns" according to the law, custom or practice in the country in which the product is to be distributed.

There shall appear on the label, reference to the presentation in close proximity to the name of the product in such descriptive terms that will adequately and fully describe the nature of the presentation of the product to avoid misleading or confusing the consumer.

In addition to the specified labelling designations above, the usual or common trade names of the variety may be added so long as it is not misleading to the consumer in the country in which the product will be distributed.

Products shall be designated as cooked, or partially cooked, or raw as appropriate.

If the product has been glazed with sea-water, a statement to this effect shall be made.

The term "quick frozen", shall also appear on the label, except that the term "frozen" may be applied in countries where this term is customarily used for describing the product processed in accordance with subsection 2.2 of this standard.

The label shall state that the product should be maintained under conditions that will maintain the quality during transportation, storage and distribution.

6.2 Net Contents (Glazed Products)

Where the food has been glazed the declaration of net contents of the food shall be exclusive of the glaze.

6.3 Storage Instructions

The label shall include terms to indicate that the product shall be stored at a temperature of -18°C or colder.

6.4 Labelling of Non-Retail Containers

Information specified above shall be given either on the container or in accompanying documents, except that the name of the food, lot identification, and the name and address as well as storage instructions shall always appear on the container.

However, lot identification, and the name and address may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

7. SAMPLING, EXAMINATION AND ANALYSES

7.1 Sampling

- (i) Sampling of lots for examination of the end product as prescribed in Section 3.3 shall be in accordance with an appropriate sampling plan with an AQL - 6.5. The sample unit is the primary container or for individually quick frozen products is at least a 1 kg portion of the sample unit.

- (ii) Sampling of lots for examination of net weight shall be carried out in accordance with an appropriate sampling plan meeting the criteria established by the Codex Alimentarius Commission.

7.2 Sensory and Physical Examination

Samples taken for sensory and physical examination shall be assessed by persons trained in such examination and in accordance with procedures elaborated in Sections 7.3 through 7.6, Annex A and the Guidelines for the Sensory Evaluation of Fish and Shellfish in Laboratories (CAC/GL 31 - 1999).

7.3 Determination of Net Weight

7.3.1 *Determination of net weight of products not covered by glaze*

The net weight (exclusive of packaging material) of each sample unit representing a lot shall be determined in the frozen state.

7.3.2 *Determination of net weight of products covered by glaze*

Procedure

- (1) Open the package with quick frozen shrimps or prawns immediately after removal from low temperature storage.
 - (i) For the raw product, place the contents in a container into which fresh water at room temperature is introduced from the bottom at a flow of approximately 25 litres per minute.
 - (ii) For the cooked product place the product in a container containing an amount of fresh potable water of 27°C (80° F) equal to 8 times the declared weight of the product. Leave the product in the water until all ice is melted. If the product is block frozen, turn block over several times during thawing. The point at which thawing is complete can be determined by gently probing the block apart.
- (2) Weigh a dry clean sieve with woven wire cloth with nominal size of the square aperture 2.8 mm (ISO Recommendation R565) or alternatively 2.38 mm (US No. 8 Standard Screen).
 - (i) If the quantity of the total contents of the package is 500 g (1.1 lbs) or less, use a sieve with a diameter of 20 cm (8 inches).
 - (ii) If the quantity of the total contents of the package is more than 500 g (1.1 lbs) use a sieve with a diameter of 30 cm (12 inches).
- (3) After all glaze that can be seen or felt has been removed and the shrimps or prawns separate easily, empty the contents of the container on the previously weighed sieve. Incline the sieve at an angle of about 20° and drain for two minutes
- (4) Weigh the sieve containing the drained product. Subtract the mass of the sieve; the resultant figure shall be considered to be the net content of the package.

7.4 Determination of Count

When declared on the label, the count of shrimp shall be determined by counting the numbers of shrimp in the container or a representative sample thereof and dividing the count of shrimp by the actual de-glazed weight to determine the count per unit weight.

7.5 Procedures for Thawing

The sample unit is thawed by enclosing it in a film type bag and immersing in water at room temperature (not greater than 35°C). The complete thawing of the product is determined by gently squeezing the bag occasionally so as not to damage the texture of the shrimp, until no hard core or ice crystals are left.

7.6 Cooking Methods

The following procedures are based on heating the product to an internal temperature of 65-70°C. The product must not be overcooked. Cooking times vary according to the size of the product and the temperature used. The exact times and conditions of cooking for the product should be determined by prior experimentation.

Baking Procedure: Wrap the product in aluminium foil and place it evenly on a flat cookie sheet or shallow flat pan.

Steaming Procedure: Wrap the product in aluminium foil and place it on a wire rack suspended over boiling water in a covered container.

Boil-in-Bag Procedure: Place the product into a boilable film-type pouch and seal. Immerse the pouch into boiling water and cook.

Microwave Procedure: Enclose the product in a container suitable for microwave cooking. If plastic bags are used, check to ensure that no odour is imparted from the plastic bags. Cook according to equipment instructions.

8. DEFINITION OF DEFECTIVES

The sample unit shall be considered as defective when it exhibits any of the properties defined below.

8.1 Deep Dehydration

Greater than 10% of the weight of the shrimp in the sample unit or greater than 10% of the surface area of the block exhibits excessive loss of moisture clearly shown as white or yellow abnormality on the surface which masks the colour of the flesh and penetrates below the surface, and cannot be easily removed by scraping with a knife or other sharp instrument without unduly affecting the appearance of the shrimp.

8.2 Foreign Matter

The presence in the sample unit of any matter which has not been derived from shrimp does not pose a threat to human health, and is readily recognized without magnification or is present at a level determined by any method including magnification, that indicates non-compliance with good manufacturing and sanitation practices.

8.3 Odour/Flavour

Shrimp affected by persistent and distinct objectionable odours or flavours indicative of decomposition or rancidity or of feed.

8.4 Discolouration

Distinct blackening or green or yellow discoloration, singly or in combination of more than 10% of the surface area of individual shrimp which affects more than 25% of the sample unit.

9. LOT ACCEPTANCE

A lot shall be considered as meeting the requirements of this standard when:

- (i) the total number of defectives as classified according to Section 8 does not exceed the acceptance number (c) of the appropriate sampling plan with an AQL-6.5;
- (ii) the total number of sample units not meeting the count designation as defined in Section 2.3 does not exceed the acceptance number (c) of the appropriate sampling plan with an AQL - 6.5;
- (iii) the average net weight of all sample units is not less than the declared weight, provided there is no unreasonable shortage in any individual container;
- (iv) the Food Additives, Hygiene and Labelling requirements of Sections 4, 5 and 6 are met.

ANNEX A**SENSORY AND PHYSICAL EXAMINATION**

1. Complete net weight determination, according to defined procedures in Section 7.3 (de-glaze as required).
2. Examine the frozen shrimp in the sample unit or the surface of the block for the presence of dehydration. Determine the percentage of shrimp or surface area affected.
3. Thaw using the procedure described in Section 7.5 and individually examine each shrimp in the sample unit for the presence of foreign matter and presentation defects. Determine the weight of shrimp affected by presentation defects.
4. Examine product for count declarations in accordance with procedures in Section 7.4.
5. Assess the shrimp for odour and discolouration as required.
6. In cases where a final decision regarding the odour/flavour cannot be made in the thawed state, a small portion of the sample unit (100 to 200 g) is prepared without delay for cooking and the odour/flavour confirmed by using one of the cooking methods defined in Section 7.6.