

# CODEX ALIMENTARIUS

INTERNATIONAL FOOD STANDARDS



Food and Agriculture  
Organization of  
the United Nations



World Health  
Organization

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**STANDARD FOR QUICK FROZEN FINFISH, UNEVISцерATED AND EVISCERATED**

**CODEX STAN 36-1981**

**Adopted in 1981. Revised in 1995, 2017. Amended in 2013.**

## 1. SCOPE

This standard shall apply to frozen finfish uneviscerated and eviscerated<sup>1</sup>.

## 2. DESCRIPTION

### 2.1 Product definition

Frozen finfish suitable for human consumption, with or without the head, from which the viscera or other organs may have been completely or partially removed.

### 2.2 Process definition

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.

Industrial repacking of quick frozen products under controlled conditions which maintain the quality of the products followed by the reapplication of the quick freezing process is permitted.

Quick frozen finfish, 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.

## 3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

### 3.1 Fish

Quick frozen finfish shall be prepared from sound fish 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

All other ingredients used shall be of food grade quality and conform to all applicable Codex and WHO standards.

### 3.4. Decomposition

The products shall not contain more than 10 mg/100 g of histamine based on the average of the sample unit tested. This shall apply only to species of *Clupeidae*, *Scombridae*, *Scombrosocidae*, *Pomatomidae* and *Coryphaenidae* families.

### 3.5 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.

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<sup>1</sup> It does not apply to fish frozen in brine intended for further processing.

#### 4. FOOD ADDITIVES

Antioxidants used in accordance with Tables 1 and 2 of the *General Standard for Food Additives* (CODEX STAN 192-1995) in food category 09.2.1 (Frozen fish, fish fillets, and fish products, including mollusks, crustaceans, and echinoderms) and its parent food categories are acceptable for use in foods conforming to this Standard.

#### 5. HYGIENE

- 5.1 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 the Processing and Handling of Quick Frozen Foods* (CAC/RCP 8-1976), and other relevant Codex Codes of Hygienic Practice and Codes of Practice.
- 5.2 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 21-1997).
- 5.3 When tested by appropriate methods of sampling and examination prescribed by the Codex Alimentarius Commission, the product:
- i) shall be free from microorganisms or substances originating from microorganisms in amounts which may present a hazard to health in accordance with standards established by the Codex Alimentarius Commission;
  - ii) shall not contain histamine that exceeds 20 mg/100 g. This applies only to species of *Clupeidae*, *Scombridae*, *Scombrosocidae*, *Pomatomidae* and *Coryphaenidae* families.
  - iii) shall not contain any other substance in amounts which may present a hazard to health in accordance with standards established by the Codex Alimentarius Commission.

#### 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 The name of the food

- 6.1.1 In addition to the common or usual name of the species, the label, in the case of eviscerated fish, shall include terms indicating that the fish has been eviscerated and whether presented as "head-on" or "headless".

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 final product as prescribed in Section 3.5 shall be in accordance with an appropriate sampling plan with an AQL of 6.5. A sample unit is the individual fish or the primary container.
- (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 CAC.

### 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, 7.4 and 7.5, 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

(To be elaborated).

### 7.4 Thawing

(To be elaborated).

### 7.5 Determination of gelatinous conditions

According to the AOAC Methods- "Moisture in Meat and Meat Products, Preparation of Sample Procedure"; 883.18 and "Moisture in Meat" (Method A); 950.46; AOAC 1990.

### 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 temperatures used. The exact times and conditions of cooking for the product should be determined by prior experimentation.

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

Steaming Procedure: Wrap the product in aluminum 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 specifications.

### 7.7 Determination of histamine

Methods meeting the following method performance criteria may be used:

ML (mg/100g)	Minimum applicable range (mg/100 g)	LOD (mg/100 g)	LOQ (mg/100g)	RSDR (%)	Recovery	Applicable methods that meet the criteria
10 (average)	8 – 12	1	2	16.0	90 – 107	AOAC 977.13   NMKL 99, 2013 NMKL 196, 2013
20 (each unit)	16 – 24	2	4	14.4	90 – 107	AOAC 977.13   NMKL 99, 2013 NMKL 196, 2013

## 8. DEFINITION OF DEFECTIVES

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

### 8.1 Deep dehydration

Greater than 10% of the surface area of the block or greater than 10% of the weight of fish in the sample unit 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 fish.

### 8.2 Foreign matter

The presence in the sample unit of any matter which has not been derived from fish (excluding packaging material), 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 and flavour

A sample unit affected by persistent and distinct objectionable odours or flavours indicative of decomposition or of feed.

### 8.4 Texture

#### 8.4.1 Textural breakdown of the flesh, indicative of decomposition characterized by muscle structure which is mushy or paste-like, or by separation of flesh from the bones.

#### 8.4.2 *Flesh abnormalities*

A sample unit affected by excessive gelatinous condition of the flesh together with greater than 86% moisture found in any individual fish or sample unit with pasty texture resulting from parasitic infestation affecting more than 5% of the sample unit by weight.

### 8.5 Belly burst

The presence of ruptured bellies in uneviscerated fish, indicative of decomposition.

## 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 average net weight of all sample units is not less than the declared weight, provided there is no unreasonable shortage in any container; and
- (iii) 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 sample unit for the presence of deep dehydration by measuring those areas or counting instances which can only be removed with a knife or other sharp instrument. Measure the total surface area of the sample unit, and calculate the percentage affected.
3. Thaw and individually examine each fish in the sample unit for the presence of foreign matter.
4. Examine each fish using the criteria outlined in Section 8. Flesh odours are examined by tearing or making a cut across the back of the neck such that the exposed surface of the flesh can be evaluated.
5. In cases where a final decision regarding the odour or texture can not be made in the thawed uncooked state, a small portion of the flesh (approximately 200 g) is sectioned from the product and the odour, flavour or texture confirmed without delay by using one of the cooking methods defined in Section 7.5.
6. In cases where a final decision on gelatinous condition cannot be made in the thawed uncooked state, the disputed material is sectioned from the product and gelatinous condition confirmed by cooking as defined in Section 7.6 or by using the procedure in Section 7.5 to determine if greater than 86% moisture is present in any fish. If a cooking evaluation is inconclusive, then the procedure in 7.5 would be used to make the exact determination of moisture content.