

# C O D E X   A L I M E N T A R I U S

INTERNATIONAL FOOD STANDARDS



Food and Agriculture  
Organization of  
the United Nations



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Organization

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## **STANDARD FOR QUICK-FROZEN FISH STICKS (FISH FINGERS), FISH PORTIONS AND FISH FILLETS – BREADED OR IN BATTER**

**CXS 166-1989**

**Adopted in 1989. Revised in 1995, 2004 and 2017. Amended in 2011, 2013, 2014, 2016 and 2024.**

**2024 Amendments**

Following decisions taken at the Forty-seventh Session of the Codex Alimentarius Commission in November 2024, amendments were made in Section 6.3 Labelling of non-retail containers by replacing the text with a reference to the *General standard for the labelling of non-retail containers of foods* (CXS 346-2021); and Section 7 Sampling, examination and analysis was amended by replacing methods of analysis and numeric performance criteria with a reference to the *Recommended methods of analysis and sampling* (CXS 234-1999).

## 1. SCOPE

This standard applies to quick-frozen fish sticks (fish fingers) and fish portions cut from quick-frozen fish flesh blocks, or formed from fish flesh, and to natural fish fillets, breaded or batter coatings, singly or in combination, raw or partially cooked and offered for direct human consumption without further industrial processing.

## 2. DESCRIPTION

### 2.1 Product definition

A fish stick (fish finger) is the product including the coating weighing not less than 20 g and not more than 50 g shaped so that the length is not less than three times the greatest width. Each stick shall be not less than 10 mm thick.

A fish portion including the coating, other than products described above, may be of any shape, weight or size.

Fish sticks or portions may be prepared from a single species of fish or from a mixture of species with similar sensory properties.

Fillets are slices of fish of irregular size and shape which are removed from the carcass by cuts made parallel to the back bone and pieces of such fillets, with or without the skin.

### 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 or further industrial processing of intermediate quick-frozen material under controlled conditions which maintains the quality of the product, followed by the re-application of the quick-freezing process, is permitted.

### 2.3 Presentation

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

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

## 3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

### 3.1 Raw material

#### 3.1.1 *Fish*

Quick-frozen breaded or battered fish sticks (fish fingers) breaded or battered fish portions and breaded or battered fillets shall be prepared from fish fillets or minced fish flesh, or mixtures thereof, of edible species which are of a quality such as to be sold fresh for human consumption.

#### 3.1.2 *Coating*

The coating and all ingredients used therein shall be of food-grade quality and conform to all applicable Codex standards.

#### 3.1.3 *Frying fat (oil)*

A fat (oil) used in the cooking operation shall be suitable for human consumption and for the desired final product characteristic (see also Section 4).

### 3.2 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.

### 3.3 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.

#### 4. FOOD ADDITIVES

Antioxidants and humectants (for use in all products conforming to this standard [CXS 166-1989]); acidity regulators and thickeners (for minced fish flesh only); and colours, emulsifiers, flavour enhancers, raising agents, and thickeners (for breaded or batter coatings) used in accordance with Table 1 and Table 2 of the *General standard for food additives* (CXS 192-1995)<sup>1</sup> in food category 09.2.2 (Frozen battered fish, fish fillets and fish products, including molluscs, crustaceans, and echinoderms) and its parent food categories are acceptable for use in foods conforming to this standard.

#### 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* (CXC 1-1969),<sup>2</sup> the *Code of practice for fish and fishery products* (CXC 52-2003),<sup>3</sup> *Code of practice for the processing and handling of quick-frozen foods* (CXC 8-1976)<sup>4</sup> 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* (CXG 21-1997).<sup>5</sup>

The final product shall be free from any foreign material that poses a threat to human health.

When tested by appropriate methods of sampling and examination prescribed by the Codex Alimentarius Commission (CAC), the product:

- 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 CAC;
- shall not contain histamine that exceeds 20 mg/100 g. This applies only to species of Clupeidae, Scombridae, Scombresocidae, Pomatomidae and Coryphaenidae families; and
- shall not contain any other substance in amounts which may present a hazard to health in accordance with standards established by the CAC.

#### 6. LABELLING

In addition to Sections 2, 3, 7 and 8 of the *General standard for the labelling of pre-packaged foods* (CXS 1-1985)<sup>6</sup> the following specific provisions apply:

##### 6.1 The name of the food

The name of the food to be declared on the label shall be "breaded" and/or "battered", "fish sticks" (fish fingers), "fish portions", or "fillets" as appropriate or other specific names used in accordance with the law and custom of the country in which the food is sold and in a manner so as not to confuse or mislead the consumer.

The label shall include reference to the species or mixture of species.

The proportion of fish content should be declared on the label.

In addition there shall appear on the label either the term "quick-frozen" or the term "frozen" whichever is customarily used in the country in which the food is sold, to describe a product subjected to the freezing processes as defined in subsection 2.2.

The label shall show whether the products are prepared from minced fish flesh, fish fillets or a mixture of both in accordance with the law and custom of the country in which the food is sold and in a manner so as not to confuse or mislead the consumer.

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

##### 6.2 Storage instructions

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

##### 6.3 Labelling of non-retail containers

The labelling of non-retail containers should be in accordance with the *General standard for the labelling of non-retail containers of foods* (CXS 346-2021).<sup>7</sup>

## 7. SAMPLING, EXAMINATION AND ANALYSIS

### 7.1 Sampling

- Sampling of lots for examination of the product shall be in accordance with an appropriate sampling plan with an AQL of 6.5. For pre-packaged goods, the sample unit is the entire container. For products packed in bulk, the sample unit is at least 1 kg of fish sticks (fish finger), fish portions or fillets.
- 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 Examination

#### 7.2.1 Sensory and physical examination

Samples taken for sensory and physical examination shall be assessed by persons trained in such examination and in accordance with the *Recommended methods of analysis and sampling (CXS 234-1999)*<sup>8</sup> and the *Guidelines for the sensory evaluation of fish and shellfish in laboratories (CXG 31-1999)*.<sup>9</sup>

### 7.3 Analysis

For checking the compliance with this standard, the methods of analysis and sampling contained in CXS 234-1999 relevant to the provisions in this standard shall be used.

## 8. DEFINITION OF DEFECTIVES

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

### 8.1 Foreign matter (cooked state)

The presence in the sample unit of any matter which has not been derived from fish (excluding packing 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.

### 8.2 Bones (cooked state) (in packs designated boneless)

More than one bone per kg greater or equal to 10 mm in length, or greater or equal to 1 mm in diameter; a bone less than or equal to 5 mm in length, is not considered a defect if its diameter is not more than 2 mm. The foot of a bone (where it has been attached to the vertebra) shall be disregarded if its width is less than or equal to 2 mm, or if it can easily be stripped off with a fingernail.

### 8.3 Odour and flavour (cooked state)

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

### 8.4 Flesh abnormalities

Objectionable textural characteristics such as gelatinous conditions of the fish core together with greater than 86 percent moisture found in any individual fillet or sample unit with pasty texture resulting from parasites affecting more than 5 percent of the sample unit by weight.

## 9. LOT ACCEPTANCE

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

- the total number of defectives as classified according to Section 8 does not exceed the acceptance number (c) of an appropriate sampling plan with an AQL of 6.5;
- the average percent fish flesh of all sample units is not less than 50 percent of the frozen weight;
- 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
- the food additives, hygiene and labelling requirements of Sections 4, 5 and 6 are met.

## NOTES

<sup>1</sup> FAO and WHO. 1995. *General standard for food additives*. Codex Alimentarius Standard, No. CXS 192-1995. Codex Alimentarius Commission. Rome.

<sup>2</sup> FAO and WHO. 1969. *General principles of food hygiene*. Codex Alimentarius Code of Practice, No. CXC 1-1969. Codex Alimentarius Commission. Rome.

<sup>3</sup> FAO and WHO. 2003. *Code of practice for fish and fishery products*. Codex Alimentarius Code of Practice, No. CXC 52-2003. Codex Alimentarius Commission. Rome.

<sup>4</sup> FAO and WHO. 1976. *Code of practice for the processing and handling of quick-frozen foods*. Codex Alimentarius Code of Practice, No. CXC 8-1976. Codex Alimentarius Commission. Rome.

<sup>5</sup> FAO and WHO. 1997. *Principles and guidelines for the establishment and application of microbiological criteria for foods*. Codex Alimentarius Guideline, No. CXG 21-1997. Codex Alimentarius Commission. Rome.

<sup>6</sup> FAO and WHO. 1985. *General standard for the labelling of pre-packaged foods*. Codex Alimentarius Standard, No. CXS 1-1985. Codex Alimentarius Commission. Rome.

<sup>7</sup> FAO and WHO. 2021. *General standard for the labelling of non-retail containers of foods*. Codex Alimentarius Standard, No. CXS 346-2021. Codex Alimentarius Commission. Rome.

<sup>8</sup> FAO and WHO. 1999. *Recommended methods of analysis and sampling*. Codex Alimentarius Standard, No. CXS 234-1999. Codex Alimentarius Commission. Rome.

<sup>9</sup> FAO and WHO. 1999. *Guidelines for the sensory evaluation of fish and shellfish in laboratories*. Codex Alimentarius Guideline, No. CXG 31-1999. Codex Alimentarius Commission. Rome.