



Food and Agriculture
Organization of the
United Nations



World Health
Organization

CODEX
ALIMENTARIUS
INTERNATIONAL FOOD STANDARDS

CODEX ALIMENTARIUS
STANDARD

**STANDARD FOR QUICK-FROZEN BLOCKS
OF FISH FILLET, MINCED FISH FLESH AND
MIXTURES OF FILLETS AND MINCED FISH FLESH**
CXs 165-1989



ADOPTED 1989
AMENDED 2024

CXS 165-1989

History of the standard

This publication was redesigned and published in 2025.

2024 Amendments

Following decisions taken at the Forty-seventh Session of the Codex Alimentarius Commission in November 2024, amendments were made in Section 6.4: “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/or numeric performance criteria with a reference to the *Recommended methods of analysis and sampling* (CXS 234-1999).

Amendments and revisions made prior to 2024:

Amended in 2011, 2013, 2014 and 2016.

Revised in 1995 and 2017.

Adopted in 1989.

1 Scope

This standard applies to quick-frozen blocks of cohering fish flesh, prepared from fillets,ⁱ or minced fish flesh, or a mixture of fillets and minced fish flesh, which are intended for further processing.

2 Description

2.1 Product definition

Quick-frozen blocks are rectangular or other uniformly shaped masses of cohering fish fillets, minced fish or a mixture thereof, which are suitable for human consumption, comprising:

- a single species; or
- a mixture of species with similar sensory characteristics.

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.

Minced fish flesh used in the manufacture of blocks are particles of skeletal muscle which have been separated from and are essentially free from bones, viscera and 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 processing of intermediate quick-frozen material under controlled conditions which maintain the quality of the product followed by the reapplication of the quick-freezing process is permitted.

These products 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.

Blocks may be presented as boneless, provided that boning has been completed including the removal of pin-bones.

ⁱ Including pieces of fillets.

3 Essential composition and quality factors

3.1 Fish

Quick-frozen blocks shall be prepared from fillets or minced flesh of 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 seawater. Potable water is freshwater fit for human consumption. Standards of potability shall not be less than those contained in the latest edition of the World Health Organization's *Guidelines for drinking-water quality*.¹ Clean seawater is seawater 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 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, Scombresocidae, Pomatomidae and Coryphaenidae families.

3.5 Final product

Products shall meet the requirements of this standard when lots examined in accordance with Section 9: "Lot acceptance" comply with the provisions set out in Section 8: "Definition of defectives". Products shall be examined by the methods given in Section 7: "Sampling, examination and analysis".

4 Food additives

Acidity regulators, antioxidants, humectants and thickeners used in accordance with Table 1 and Table 2 of the *General standard for food additives* (CXS 192-1995)² in food category 09.2.1 (Frozen 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),³ the *Code of practice for fish and fishery products* (CXC 52-2003),⁴ the *Code of practice for the processing and handling of quick-frozen foods* (CXC 8-1976)⁵ and other relevant Codex codes of hygienic practice and codes of practice.

The products shall 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).⁶

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

6 Labelling

In addition to the provisions of the *General standard for the labelling of pre-packaged foods* (CXS 1-1985),⁷ the following specific provisions apply:

6.1 Name of the food

The name of the food shall be declared as “x y blocks” in accordance with the law, custom or practice of the country in which the product is distributed, where “x” shall represent the common name(s) of the species packed and “y” shall represent the form of presentation of the block (see Section 2.3: “Presentation”).

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

The name “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 Section 2.2: “Process definition” of this standard.

The proportion of mince in excess of 10 percent of net fish content shall be declared stating the percentage ranges: 10–25, >25–35, etc. Blocks with more than 90 percent mince are regarded as mince blocks.

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 blocks)

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

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).⁸

7 Sampling, examination and analysis

7.1 Sampling

7.1.1 Sampling plan for fish blocks

Sampling of lots for examination of the product shall be in accordance with the sampling plan defined below. The sample unit is the entire block.

Lot size (number of blocks)	Sample size (number of blocks to be tested, n)	Acceptance number (c)
< 15	2	0
16 – 50	3	0
51 – 150	5	1
151 – 500	8	1
501 – 3 200	13	2
3 201 – 35 000	20	3
> 35 000	32	5

If the number of defective blocks in the sample is less than or equal to c, accept the lot; otherwise, reject the lot.

Sampling of lots for examination of net weight shall be carried out in accordance with an appropriate sampling plan meeting the established 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 the *Recommended methods of analysis and sampling* (CXS 234-1999)⁹ and the *Guidelines for the sensory evaluation of fish and shellfish in laboratories* (CXG 31-1999).¹⁰

7.2.2 Procedure for the detection of parasites for skinless blocks of fish fillets (Type I method)

The entire sample unit is examined non-destructively by placing appropriate portions of the thawed sample unit on a 5 mm thick acryl sheet with 45 percent translucency and candled with a light source giving 1 500 lux 30 cm above the sheet.

7.3 Analysis

For checking compliance with this standard, the methods of analysis and sampling contained in the *Recommended methods of analysis and sampling* (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 Deep dehydration

Greater than 10 percent of the surface area of 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 block.

8.2 Foreign matter

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.

8.3 Parasites

The presence of two or more parasites per kg of the sample unit detected by a method described in Section 7.2.2: "Procedure for the detection of parasites for skinless blocks of fish fillets", with a capsular diameter greater than 3 mm or a parasite not encapsulated and greater than 10 mm in length.

8.4 Bones (in packs designated boneless)

More than one bone per kg of product 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.

8.5 Odour and flavour

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

8.6 Flesh abnormalities

A sample unit affected by excessive gelatinous condition of the flesh together with greater than 86 percent moisture found in any individual fillet, or a sample unit with pasty texture resulting from parasitic infestation 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 defective sample units as classified according to Section 8: “Definition of defectives” does not exceed the acceptance number (c) of the sampling plan in Section 7: “Sampling, examination and analysis”;
- 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 Section 4: “Food additives”, Section 5: “Hygiene” and Section 6: “Labelling” are met.

Referenced texts

- 1 WHO. 2022. *Guidelines for drinking-water quality: fourth edition incorporating the first and second addenda*. Geneva. www.who.int/publications/i/item/9789241549950
- 2 *General standard for food additives* (CXS 192-1995).
- 3 *General principles of food hygiene* (CXC 1-1969).
- 4 *Code of practice for fish and fishery products* (CXC 52-2003).
- 5 *Code of practice for the processing and handling of quick-frozen foods* (CXC 8-1976).
- 6 *Principles and guidelines for the establishment and application of microbiological criteria for foods* (CXG 21-1997).
- 7 *General standard for the labelling of pre-packaged foods* (CXS 1-1985).
- 8 *General standard for the labelling of non-retail containers of foods* (CXS 346-2021).
- 9 *Recommended methods of analysis and sampling* (CXS 234-1999).
- 10 *Guidelines for the sensory evaluation of fish and shellfish in laboratories* (CXG 31-1999).

Codex Alimentarius

A collection of international food standards developed to protect consumer health and ensure fair practices in the food trade. Codex standards are adopted by the Codex Alimentarius Commission, an intergovernmental body with 189 Members, established by FAO and WHO. The standards are recognized by the World Trade Organization as the benchmark for the safety of internationally traded food.

Codex Secretariat

Contacts

codex@fao.org
codexalimentarius.org
[x.com/FAOWHOCodex](https://twitter.com/FAOWHOCodex)
[youtube.com/@UNFAO](https://www.youtube.com/@UNFAO)

Food and Agriculture Organization of the United Nations

Rome, Italy

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