

CODEX ALIMENTARIUS

INTERNATIONAL FOOD STANDARDS



Food and Agriculture
Organization of
the United Nations



World Health
Organization

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STANDARD FOR SALTED FISH AND DRIED SALTED FISH OF THE GADIDAE FAMILY OF FISHES

CXS 167-1989

Adopted in 1989. Revised in 1995 and 2005. Amended in 2011, 2013, 2016, 2018 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 6.2 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 with a reference to the *Recommended methods of analysis and sampling* (CXS 234-1999).

1. SCOPE

This standard applies to salted fish and dried salted fish of the Gadidae family which has been fully saturated with salt (heavy salted) or to salted fish which has been preserved by partial saturation to a salt content not less than 12 percent by weight of the salted fish which may be offered for consumption without further industrial processing.

2. DESCRIPTION

2.1 Product definition

Salted fish is the product obtained from fish:

- of the species belonging to the family Gadidae; and
- which has been bled, gutted, beheaded, split or filleted, washed, salted; or
- dried salted fish which is salted fish which have been dried.

2.2 Process definition

The product shall be prepared by one of the salting processes defined in Section 2.2.1 and one or both of the drying processes defined in Section 2.2.2 and according to the different types of presentation as defined in Section 2.3.

2.2.1 Salting

- **Dry salting (kench curing)** is the process of mixing fish with suitable food-grade salt and stacking the fish in such a manner that the excess of the resulting brine drains away.
- **Wet salting (pickling)** is the process whereby fish is mixed with suitable food-grade salt and stored in watertight containers under the resultant brine (pickle) which forms by solution of salt in the water extracted from the fish tissue. Brine may be added to the container. The fish is subsequently removed from the container and stacked so that the brine drains away.
- **Brine injection** is the process for directly injecting brine into the fish flesh and is permitted as a part of the heavy salting process.

2.2.2 Drying

- **Natural drying** – the fish is dried by exposure to the open air.
- **Artificial drying** – the fish is dried in mechanically-circulated air, the temperature and humidity of which may be controlled.

2.3 Presentation

2.3.1 Split fish – split and with the major length of the anterior of the backbone removed (about two-thirds).

2.3.2 Split fish with entire backbone – split with the whole of the backbone not removed.

2.3.3 Fillet – is cut from the fresh fish, strips of flesh are cut parallel to the central bone of the fish and from which fins, main bones and sometimes belly flap is removed.

2.3.4 Other presentation: any other presentation of the product shall be permitted provided that it:

- is sufficiently distinctive from the other forms of presentation laid down in this standard;
- meets all other requirements of this standard; and
- is adequately described on the label to avoid confusing or misleading the consumer.

2.3.5 Individual containers shall contain only one form of presentation from only one species of fish.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 Fish

Salted fish shall be prepared from sound and wholesome fish, fit for human consumption.

3.2 Salt

Salt used to produce salted fish shall be clean, free from foreign matter and foreign crystals, show no visible signs of contamination with dirt, oil, bilge or other extraneous materials and comply with the requirements laid down in the *Code of practice for fish and fishery products* (CXC 52-2003).¹

3.3 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.

4. FOOD ADDITIVES

Preservatives used in accordance with Table 1 and Table 2 of the *General standard for food additives* (CXS 192-1995)² in food category 09.2.5 (Smoked, dried, fermented, and/or salted fish and fish products, including molluscs, crustaceans, and echinoderms) and their 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),¹ 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).⁴

6. LABELLING

In addition to the provisions of the *General standard for the labelling of pre-packaged foods* (CXS 1-1985),⁵ the following specific provisions apply:

6.1 Name of the food

The name of the food to be declared on the label shall be "salted fish", "wet salted fish" or "salted fillet" "dried salted fish" or "klippfish" or other designations according to the law, custom or practice in the country in which the product is to be distributed. In addition, there shall appear on the label in conjunction with the name of the product, the name of the species of fish from which the product is derived.

For forms of presentation other than those described in Section 2.3.1 "split fish", the form of presentation shall be declared in conjunction with the name of the product in accordance with Section 2.3.2 as appropriate. If the product is produced in accordance with Section 2.3.3, the label shall contain in close proximity to the name of the food, such additional words or phrases that will avoid misleading or confusing the consumer.

The term "klippfish" can only be used for dried salted fish which has been prepared from fish which has reached 95 percent salt saturation prior to drying.

The term "wet salted fish" can only be used for fish fully saturated with salt.

6.2 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).⁶

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. A sample unit shall be the primary container or where the product is in bulk, the individual fish is the sample unit.
- Sampling for net weight shall be carried out in accordance with the *General guidelines on sampling* (CXG 50-2004).⁷

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)⁸ and the *Guidelines for the sensory evaluation of fish and shellfish in laboratories* (CXG 31-1999).⁹

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

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

8.1.1 *Foreign matter*

The presence in the sample unit of any matter which has not been derived from Gadidae fish, 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.

8.1.2 *Odour*

Fish affected by persistent and distinct objectionable odours indicative of decomposition (such as sour, putrid, etc.) or contamination by foreign substances (such as fuel oil, cleaning compounds, etc.).

8.1.3 *Pink*

Any visible evidence of red halophilic bacteria.

8.1.4 *Appearance*

Textural breakdown of the flesh which is characterized by extensive cracks on more than two-thirds of the surface area or which has been mutilated, torn or broken through to the extent that the split fish is divided into two or more pieces but still held together by skin.

The sample unit shall be considered defective when 30 percent or more of the fish in the sample unit are affected by any of the following defects.

8.1.5 *Halophilic mould (dun)*

A fish showing an aggregate area of pronounced halophilic mould clusters on more than one-third of the total surface area of the face side.

8.1.6 *Liver stains*

A pronounced yellow or yellowish orange discolouration caused by the presence of liver and affecting more than one-quarter of the total surface area of the face of the fish.

8.1.7 *Intense bruising*

Any fish showing more than half of the face of the fish with intense bruising.

8.1.8 *Severe burning*

A fish with more than half of the back (skin side) tacky or sticky due to overheating during drying.

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 net weight of all sample units is not less than the declared weight, provided no individual container is less than 95 percent of the declared weight;
- the total number of sample units not meeting the form of presentation as defined in Section 2.3 does not exceed the acceptance number (c) of an appropriate sampling plan with an AQL of 6.5; and
- the food additives, hygiene and labelling requirements of Sections 4, 5 and 6 are met.

NOTES

¹ 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.

² FAO and WHO. 1995. *General standard for food additives*. Codex Alimentarius Standard, No. CXS 192-1995. Codex Alimentarius Commission. Rome.

³ FAO and WHO. 1969. *General principles of food hygiene*. Codex Alimentarius Code of Practice, No. CXC 1-1969. Codex Alimentarius Commission. Rome.

⁴ 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.

⁵ FAO and WHO. 1985. *General standard for the labelling of pre-packaged foods*. Codex Alimentarius Standard, No. CXS 1-1985. Codex Alimentarius Commission. Rome.

⁶ 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.

⁷ FAO and WHO. 2004. *General guidelines on sampling*. Codex Alimentarius Guideline, No. CXG 50-2004. Codex Alimentarius Commission. Rome.

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

⁹ 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.