

STANDARD FOR BOILED DRIED SALTED ANCHOVIES

CODEX STAN 236-2003

1. SCOPE

This standard shall apply to all commercial species of fish belonging to the family *Engraulidae* that have been salted, boiled and dried. This product is intended for cooking before consumption. This Standard does not cover products which have undergone an enzymatic maturation in brine.

2. DESCRIPTION

2.1 PRODUCT DEFINITION

The product shall be prepared from fresh fish of the family *Engraulidae* obtained from the raw material described in Section 3.1.

2.2 PROCESS DEFINITION

2.2.1 The product shall be prepared by washing fresh fish in brine or clean sea water and salting by boiling in brine or clean sea water and drying. The drying process shall mean sundrying or artificial drying.

2.2.2 The product shall be packed in a suitable packaging material which is moisture proof and gas impermeable. It shall be processed and packaged so as to minimize oxidation.

2.3 HANDLING PRACTICE

Fresh anchovies that are not processed immediately after harvesting shall be handled under such hygienic conditions as will maintain the quality during transportation and storage up to and including the time of processing. It is recommended that the fish shall be properly chilled or iced to bring its temperature down to 0°C (32°F) as quickly as possible as specified in *Code of Practice for Fish and Fishery Products* (CAC/RCP 52-2003) and kept at an adequate temperature to prevent deterioration, histamine formation, spoilage and bacterial growth prior to processing. The drying process must be sufficiently short to preclude the formation of *Clostridium botulinum* toxin.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 RAW MATERIAL

3.1.1 Fish

The product shall be prepared from clean, sound fish which have characteristic fresh appearance, colour and odour.

3.1.2 Salt

Salt shall mean sodium chloride of suitable quality as specified in section 11.3.1 Salt requirements of the *Code of Practice for Fish and Fishery Products* (CAC/CRP 52-2003).

3.2 FINAL PRODUCT

3.2.1 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.

3.2.2 The product shall comply with the requirements prescribed in Table 1.

Table 1: Requirements for Dried Salted Anchovies

| Characteristics | Requirement |
|--|-------------|
| Sodium chloride, percent by weight, max (d.b.) | 15 |
| Water activity (a_w), max | 0.75 |
| Acid insoluble ash, percent by weight, max. (d.b.) | 1.5 |

3.3 BREAKAGE

3.3.1 Breakage shall mean fish (excluding fins and scales) which is not intact. The percentage of breakage is determined by the number of broken fish over the total number of fish in the test sample.

3.3.2 The percent breakage defined in section 3.3.1 shall not exceed the limits specified in section 3.5.

3.4 DECOMPOSITION

The products shall not contain more than 10 mg/100g of histamine based on the average of the sample unit tested.

3.5 SIZE CLASSIFICATION

According to Annex A.

4. FOOD ADDITIVES

No food additives are permitted in these products.

5. HYGIENE

5.1 It is recommended that the product 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) 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 No sample unit shall contain histamine that exceeds 20 mg/100g.

5.4 The product shall not contain any other substance in amounts which may present a hazard to health of 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

The name of the product shall be "Boiled Dried Salted Anchovies" in addition the common name of the fish shall be declared in accordance with the law and custom of the country in which the product is sold, in a manner not mislead the consumer.

6.2 GRADE AND SIZE OF PRODUCT

If the grade and size of fish is declared the table of Annex A should be applied.

6.3 SCIENTIFIC NAMES

The scientific names of the fish shall be declared on trade documents.

6.4 ADDITIONAL REQUIREMENTS

The package shall bear clear directions for keeping the product from the time they are purchased from the retailer to the time of their use and directions for cooking.

7. SAMPLING, EXAMINATION AND ANALYSIS

7.1 SAMPLING

Sampling of lots for examination of the products shall be in accordance with an appropriate sampling plan with an AQL of 6.5.

7.2 DETERMINATION OF SODIUM CHLORIDE

According to AOAC 937.09 (chloride expressed as sodium chloride).

7.3 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 |

7.4 SENSORY AND PHYSICAL EXAMINATION

Samples taken for sensory and physical examination shall be assessed by persons trained in such examination and in accordance with Annex B.

8. DEFINITION OF DEFECTIVES

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

8.1 FOREIGN MATTER

The presence in the sample unit of any matter, which has not been derived from the *Engraulidae* family, and 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 BREAKAGE

Extensive textural breakdown of the fish which is characterized by the body part being split or broken or torn into two or more pieces in more than 25% of the fish in the sample unit.

8.3 ODOUR AND FLAVOUR

A sample unit affected by persistent and distinct objectionable odours and flavours indicative of decomposition (such as putrid) or rancidity.

8.4 PINK

Any visible evidence of red halophilic bacteria on the surface of the fish in more than 25% of the fish in the sample unit.

8.5 MOULD GROWTH

Fish with an aggregate area of pronounced mould growth in more than 25% the sample unit.

9. LOT ACCEPTANCE

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

1. 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.
2. the average net weight of all sample units is not less than the declared weight, provided no individual container is less than 95% of the declared weight; and
3. the Food additives, Hygiene, and Labelling requirements of Section 4, 5 and 6 are met.

“ANNEX A”**1. SIZING**

Size shall be determined by the length of the product (whole fish).

| <u>Size Designation</u> | <u>Length</u> |
|-------------------------|---------------------|
| Small | less than 3.5 cm |
| Medium | 3.5 - 6.5 cm |
| Big | greater than 6.5 cm |

2. GRADING

Each size of dried salted anchovies shall be classified into two grades as defined below:

| Characteristics | Grade | |
|--|---|-------------------------|
| | A | B |
| Breakage | Less than 5% | Less than 15% |
| Colour (comparison of colour must be among the same species of fish) | Whitish or bluish or yellowish (characteristic of species) | Off colour |
| Odour | No foul or rancid smell | No foul or rancid smell |

SENSORY AND PHYSICAL EXAMINATION

The sample used for sensory evaluation should not be same as that used for other examination.

1. Examine every fish in the sample unit for foreign matter, breakage, pink condition and mould growth.
2. Assess the odour in uncooked sample in accordance with the *Guidelines for the Sensory Evaluation of Fish and Shellfish in Laboratories* (CAC/GL 31-1999).
3. Assess the flavour in cooked sample in accordance with the *Guidelines for the Sensory Evaluation of Fish and Shellfish in Laboratories* (CAC/GL 31-1999).

The sample shall be cooked prior to assessment according to the cooking instructions on the package. When such instructions are not given, the sample shall be deep fried in fresh cooking oil at 190°C for 1-2 minutes as appropriate to the size.