



**JOINT FAO/WHO FOOD STANDARDS PROGRAMME
CODEX COMMITTEE ON FISH AND FISHERY PRODUCTS
Thirty-first Session
Tromsø, Norway
11 – 15 April 2011**

PROPOSED DRAFT STANDARD FOR FRESH/LIVE AND FROZEN ABALONE (*Haliotis* spp)

(At Step 3 of the Procedure)

Governments and interested international organizations are invited to submit comments on the attached Proposed Draft Standard at Step 3 and should do so in writing in conformity with the Uniform Procedure for the Elaboration of Codex Standards and Related Texts (see *Procedural Manual of the Codex Alimentarius Commission*) to: the Secretariat, Codex Alimentarius Commission, Joint WHO/FAO Food Standards Programme, FAO, Viale delle Terme di Caracalla, 00153 Rome, Italy, by email codex@fao.org or fax: +39-06-5705-4593, with a copy to Codex Contact Point, Norwegian Food Control Authority, P.O.Box 8187 Dep. 0034 Oslo, Norway, Fax: +47.74.11.32.01, email: ccffp@mattilsynet.no by **20 January 2011**.

BACKGROUND

1. The 30th Session of the Committee agreed that South Africa should redraft the Proposed Draft Standard for Fresh/Live and Frozen Abalone (*Haliotis* spp.) taking into account the discussion and the comments submitted at that session.¹
2. In revising the proposed draft Standard, consideration was given to the discussion and comments made at the 30th Session of the CCFFP².
3. Section I-5.2 was rewritten to indicate that it is acknowledged that abalone from certain geographical areas have been found to accumulate biotoxins and therefore it is up to the competent authority to determine whether this risk exists in any geographical area under their control and if so, to implement the measures described in the Standard.
4. It was also the opinion of many delegations that whilst microbiological criteria could be applicable and should be controlled, as for all other fishery products, that the microbiological risks normally associated with filter feeding bivalves are much lower for abalone and therefore it was not considered appropriate to classify growing/harvesting areas on microbiological grounds. The relevant sections in the standard were amended as per proposals of the Committee.
5. Comments are invited on the Proposed Draft Standard as indicated above.

¹ ALINORM 10/33/18, paras 132 - 133

² ALINORM 10/33/18, paras 124 - 131

PROPOSED DRAFT STANDARD FOR LIVE ABALONE AND FOR RAW FRESH CHILLED OR FROZEN ABALONE FOR DIRECT CONSUMPTION OR FOR FURTHER PROCESSING

1. SCOPE

This standard applies to live abalone and/or raw fresh chilled or frozen abalone of the genus *Haliotis*. Raw fresh chilled or frozen abalone may be whole or shucked with the viscera and mucous removed. The epithelium and radula may be removed. Chilling or freezing is done in such a way that essentially the freshness characteristics of live abalone are retained. Both live and raw abalone may be intended for direct consumption or further processing

Part I below applies to live abalone, while Part II applies to raw fresh chilled or frozen abalone.

PART I – LIVE ABALONE

I-2 DESCRIPTION

I-2.1 Product definition

Live abalone are products that are alive immediately prior to consumption. Presentation includes the shell.

I-2.2 Process Definition

Live abalone are harvested alive from a harvesting area or farm approved by the official agency having jurisdiction, to supply abalone for direct human consumption and may be purged in clean sea water and/or drained prior to packaging for direct human consumption or for further processing as in II-2.2.

I-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.

The abalone may be packed by weight, count, count per unit of weight, volume or per package.

I-3 ESSENTIAL COMPOSITION AND QUALITY FACTORS

I-3.1 Abalone

The abalone must be alive and possess organoleptic characteristics associated with freshness, and freedom from taint or extraneous matter, as determined by specialists familiar with the species concerned.

I-3.2 Water for Purging

Sea water for purging shall be of the required cleanliness to ensure that abalone comply with the requirements in ~~I-6.4 and I-6.5~~ I-6.2.

I-3.3 Ice for Packing

If ice is used for packing, the water used for the manufacture of ice shall be of potable quality or shall be clean sea-water. Potable water is fresh water fit for human consumption. Standards for 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.

I-3.4 Final Product

Live abalone shall meet the requirements of this standard when lots comply with the provisions of Section I-10. Live abalone shall be examined by the methods given in Sections I-8 and I-9.

I-4 FOOD ADDITIVES

Food additives are not permitted in live abalone.

I-5 CONTAMINANTS

I-5.1 The products covered by this Standard shall comply with the Maximum Levels of the Codex General Standard for Contamination and Toxins in Foods and Feeds (CODEX/STAN 193-1995) and the maximum residue limits for pesticides and veterinary drugs established by the Codex Alimentarius Commission.

I-5.2 Abalone from some geographical areas have been found to accumulate biotoxins. It is up to the competent authority to determine whether a risk exists in any geographical areas under its control and if so, put in the necessary mechanisms to ensure abalone meet with the following requirements in the edible part.

Name of biotoxin group	Maximum level / kg of abalone flesh
Saxitoxin (STX) Group	≤ 0.8 milligrams (2HCL) of saxitoxin equivalent

Other biotoxin groups associated with bivalve molluscs (e.g. Okadaic acid group, Domoic acid group, Brevetoxin group and the Azaspiracid group)

There is currently little information to demonstrate that the other biotoxin groups associated with bivalve molluscs are accumulated in abalone. It is however recommended that abalone harvested from waters known or suspected to contain toxic bivalves and/or high concentrations of causative organisms be monitored for presence of the relative biotoxins. Information indicating the necessity to review this section in the standard for abalone should be reported to CCFFP.

I-6 HYGIENE AND HANDLING

I-6.1 It is recommended that the products covered by provisions of this Standard be prepared and handled in accordance with the appropriate sections of the Recommended International Code of Practice – 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 texts such as Codes of Hygienic Practice and Codes of Practice.

I-6.2 The products should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

I-7 LABELLING

In addition to the provisions of the Codex General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985) the following specific provisions apply:

I-7.1 The Name of the Food

The name of the food to be declared on the label shall be the common or usual name of the species of abalone in accordance with the law and custom of the country in which the food is sold and in a manner not to mislead the consumer.

I-7.1.1 There shall appear on the label, reference to the presentation (provided for in Section I-2.3-Presentation) in close proximity to the name of the product in such descriptive terms that will adequately and fully describe the nature of the presentation of the product to avoid misleading or confusing the consumer.

I-7.1.2 In addition to the specified labelling designations above, the usual or common trade names of the variety may be added so long as it is not misleading to the consumer in the country in which the product will be distributed.

In addition to the provisions of the Codex General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985) the following specific provisions apply:

I-7.2 Content Declaration

Live abalone shall be labelled by weight, count, count per unit weight, or volume as appropriate to the product.

I-7.3 Storage Instructions

The label shall specify the conditions for storage and/or temperature that will maintain the quality/viability during transportation, storage and distribution.

I-7.4 Labelling of Non-retail Containers

Labelling for live abalone shall contain the following information:

- (i) Identification of the product by common and/or scientific names as determined by the competent authority. The country where the product is sold can determine if the scientific name must be indicated on the label.
- (ii) Information that might be needed in the event of a food safety problem, including lot identification which could be lot code or date and location of harvest, information about harvest area, date of harvesting, purification or relaying as appropriate, as well as identification of the despatch centre or other establishment from which they were shipped.
- (iii) Durability or shelf life.

Date of minimum durability may be replaced by the statement “Abalone must be alive when sold”.

I-8 SAMPLING, EXAMINATION AND ANALYSIS

I-8.1 Sampling

- (i) Each sample shall contain a sufficient number of abalone to ensure that the sample is representative of the lot.
- (ii) The portion of the abalone to be analysed shall be the edible part. This is generally the whole tissue.

I-8.2 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 I-8.3 through I-9, and “Guidelines for the Sensory Evaluation of Fish and Shellfish in Laboratories” (CAC/GL 31-1999).

I-8.3 Determination of Count per Unit Weight or Volume

When declared on the label, the count of abalone shall be determined by counting the number of abalone in the container or a representative sample thereof and dividing the count of abalone by the actual weight/volume to determine the count per unit weight or volume.

I-8.4. Determination of Biotoxins

Provision	Methodology	Principle	Type
Saxitoxin group	AOAC Official Method 2005.06 (Paralytic Shellfish Poisoning Toxins in Shellfish) four matrices and 12 toxins	LC-FL	II

I-9 DEFINITION OF DEFECTIVES

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

I-9.1 Foreign Matter

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

I-9.2 Dead or Damaged Product

Dead abalone is characterized by lack of muscle movement when touched and/or complete muscle stiffness due to the rigor mortis process setting in after death of the animal. Animals damaged to the extent that they can no longer function biologically, are considered to be defective. The product is rejected if more than 5% of the units in the sample are dead or damaged.

I-10 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 I-9 does not exceed the acceptance number (c) of the appropriate sampling plan in the General Guidelines on Sampling (CAC/GL 50-2004);
- (ii) the total number of sample units not meeting the count designation as defined in section I-8.3 does not exceed the acceptance number (c) of the appropriate sampling plan in the General Guidelines on Sampling (CAC/GL 50-2004);
- (iii) the average net weight of all sample units is not less than the declared weight, provided there is no unreasonable shortage in any individual container;
- (iv) the Food Additives, Hygiene and Labelling requirements of Sections I-4, I-5, I-6 and I-7 are met.

PART II – RAW FRESH CHILLED OR FROZEN ABALONE

II-2 DESCRIPTION

II-2.1 Product Definition

Raw fresh chilled or frozen abalone processed for direct consumption or for further processing are products that were alive immediately prior to the commencement of processing and comply with Section I-2.2 relating to harvesting. They have been chilled or frozen whole or shucked with the viscera, epithelium and mucous removed. The radula may be removed. The product is then chilled or frozen while essentially retaining the sensory characteristics of live abalone.

II-2.2 Process Definition

The product is harvested as in I-2.2 and after suitable preparation is subjected to a chilling or freezing process complying with the conditions laid down hereafter. The chilling process shall be carried out in appropriate equipment in such a way as to ensure the product shall be quickly brought down to the temperature of melting ice (with a maximum tolerance of -2°C to $+4^{\circ}\text{C}$). The product shall be kept chilled at this temperature so as to maintain the quality during transportation, storage and distribution.

The freezing process shall be carried out in appropriate equipment in such a way that the range of maximum ice 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.

II-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.

The abalone may be packed by weight, count, count per unit of weight, volume or per package.

II-3 ESSENTIAL COMPOSITION AND QUALITY FACTORS

II-3.1 Raw Fresh Chilled or Frozen Abalone

Raw abalone shall be of a quality fit for human consumption.

II-3.2 Glazing (for Frozen Abalone only)

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.

II-3.3 Other Ingredients

The packing medium and all other ingredients used shall be of food grade quality and conform to all applicable Codex standards.

II-3.4 Final Product

Raw fresh chilled or frozen abalone shall meet the requirements of this standard when lots examined in accordance with Sections II-8 and II-9 comply with the provisions set out in Section II-10.

II-4 FOOD ADDITIVES

Only the use of the following additives is permitted in raw abalone.

II-4.1 Antioxidants

For raw fresh chilled or frozen abalone any antioxidant that may be used are listed in food category 09.2.1 (Frozen fish, fish fillets, and fish products, including molluscs, crustaceans, and echinoderms) of the General Standard for Food Additives (CODEX STAN 192-1995).

II-5 CONTAMINANTS

Refer to I-5 Contaminants

II-6 HYGIENE AND HANDLING

Abalone should meet the requirements of I-6 prior to chilling/freezing. After processing they should retain visual characteristics associated with freshness, including, where relevant, shells free of dirt.

II-7 LABELLING

In addition to the provisions of the Codex General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985) the following specific provisions apply:

II-7.1 The Name of the Food

The name of the food to be declared on the label shall be the common or usual name of the species of abalone in accordance with the law and custom of the country in which the food is sold and in a manner not to mislead the consumer.

II-7.1.1 There shall appear on the label, reference to the presentation (provided for in Section II-2.3-Presentation) in close proximity to the name of the product in such descriptive terms that will adequately and fully describe the nature of the presentation of the product to avoid misleading or confusing the consumer.

II-7.1.2 In addition to the specified labelling designations above, the usual or common trade names of the variety may be added so long as it is not misleading to the consumer in the country in which the product will be distributed.

II-7.2 Content Declaration

Raw fresh chilled or frozen abalone shall be labelled by weight, count, count per unit weight, or volume as appropriate to the product.

II-7.3 Storage Instructions

The label shall include terms to indicate that the product shall be stored at a temperature of -18°C or colder for frozen abalone and -2°C to $+4^{\circ}\text{C}$ for chilled abalone.

II-7.4 Labelling of non-retail containers

Labelling for raw fresh chilled or frozen abalone shall contain the following information:

- (i) Identification of the product by common and/or scientific names as determined by the competent authority. The country where the product is sold can determine if the scientific name must be indicated on the label.
- (ii) Information that might be needed in the event of a food safety problem, including lot identification which could be lot code or date and location of harvest, information about harvest area,

date of harvesting, purification or relaying as appropriate, as well as identification of the despatch centre or other establishment from which they were shipped.

(iii) Durability or shelf life.

II-8 SAMPLING, EXAMINATION AND ANALYSIS

II-8.1 Sampling

- (i) Each sample shall contain a sufficient number of abalone to ensure that the sample is representative of the lot.
- (ii) The portion of the abalone analysed should be the edible part. This is generally the whole tissue. Sampling of lots for examination of the product shall be in accordance with the Codex General Guidelines on Sampling (CAC/GL 50-2004).

II-8.2 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 II-8.3 through II-8.5 and II-9, and Guidelines for the Sensory Evaluation of Fish and Shellfish in Laboratories” (CAC/GL 31-1999).

II-8.3 Determination of Net Weight

The net weight of all sample units shall be determined by the procedures described or mentioned in sections II-8.3.1 through II-8.3.3.

II-8.3.1 Determination of Net Weight of Product Exclusive of Packaging

- (i) Weigh the unopened container;
- (ii) Open the container and remove the contents;
- (iii) Dry the empty container and weigh.
- (iv) Subtract the weight of the empty container from the weight of the unopened container.

The resultant figure will be the total net weight.

II-8.3.2 Determination of Net Weight of Frozen 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.

II-8.3.3 Determination of Net Weight of Frozen Products Covered by Glaze

The net weight (exclusive of packaging material) of each sample unit representing a lot shall be determined using the AOAC official method 963.18, Net Contents of Frozen Seafoods.

II-8.4. DETERMINATION OF COUNT PER UNIT WEIGHT OR VOLUME

When declared on the label, the count of abalone shall be determined by counting the numbers of abalone in the container or a representative sample thereof and dividing the count of abalone by the actual weight/volume to determine the count per unit weight or volume.

II-8.5. SAMPLE PREPARATION

II-8.5.1 Procedures for Thawing

For frozen product, the sample unit is thawed by enclosing it in a film type bag and immersing in water at room temperature (not greater than 35 °C). The complete thawing of the product is determined by gently squeezing the bag occasionally so as not to damage the texture of the abalone, until no hard core or ice crystals are left.

II-8.6 Determination of Biotoxins

Refer to I-8.6 Determination of Biotoxins

II-9 DEFINITION OF DEFECTIVES

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

II-9.1 Deep Dehydration

Greater than 10% of the weight of the abalone in the sample unit exhibits excessive loss of moisture clearly shown as white or abnormal colour 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 abalone.

II-9.2 Foreign Matter

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

II-9.3 Odour/Flavour

Persistent and distinct objectionable odours or flavours indicative of decomposition or rancidity.

II-9.4 Texture

Textural breakdown of the flesh, indicative of decomposition, characterized by a muscle structure that is mushy or paste-like.

II-10 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 II-8 does not exceed the acceptance number (c) of the appropriate sampling plan in the General Guidelines on Sampling (CAC/GL 50-2004);
- (ii) the total number of sample units not meeting the count designation as defined in section II-2.3 does not exceed the acceptance number (c) of the appropriate sampling plan in the General Guidelines on Sampling (CAC/GL 50-2004);
- (iii) the average net weight of all sample units is not less than the declared weight, provided there is no unreasonable shortage in any individual container;
- (iv) the Food Additives, Hygiene and Labelling requirements of Sections II-4, II-5 and II-6 are met.