

1 Scope

This standard applies to scallops species of the *Pectinidae* family in the following product categories:

- (i) “Fresh or Quick Frozen Scallop Meat”, which is the scallop adductor muscle meat;
- (ii) “Fresh or Quick Frozen Roe-on Scallop Meat”, which is the scallop adductor muscle meat and attached roe (with or without shell); and
- (iii) “Quick Frozen Scallop Meat”, or Quick Frozen Roe-on Scallop Meat”, with added water and/or solutions of water and phosphates.

Products covered by this standard may be intended for direct consumption or for further processing.

2 Reference

The titles of the standards publications referred to in this standard are listed on the inside back cover.

3 Definition of terms

For the purpose of the standard, the following terms shall mean:

3.1

biotoxins

poisonous substances naturally present in fish and fishery products or accumulated by the animal feeding on toxin producing algae, or in water containing toxins produced by such organisms

(BAFS/PNS 89-2011)

3.2

clean seawater

seawater which meets the same microbiological standards as potable water, and is free from objectionable odor and substances

(PNS/BAFS 138:2014)

3.3

contaminant

any biological or chemical agent, foreign matter, or other substances not intentionally added to food which may compromise food safety or suitability

(BAFS/PNS 138:2014)

3.4

glazing

application of protective layer of ice formed at the surface of a frozen product, done by spraying with or dipping it into clean seawater, or potable water with approved additives, as appropriate
(BAFPS/PNS 89-2011)

3.5

ingredient

any substance, including a food additive, used in the manufacture or preparation of a food and present in the final product although possibly in a modified form (BAFPS/PNS 89-2011)

3.6

label

any tag, brand, mark, pictorial or other descriptive matter, written, printed, stenciled, marked, embossed or impressed on, or attached to, a container of food
(BAFPS/PNS 89-2011)

3.7

lot

a definitive quantity of a commodity produced essentially under the same conditions
(BAFPS/PNS 89-2011)

3.8

potable water

water suitable (both for health and acceptability considerations) for drinking and cooking purposes
(PNS/BAFS 138:2014)

3.9

Quick freezing

a freezing rate at which no part of the fish takes more than two hours to cool from -1°C to -5°C , which further reduction of the temperature at the end of the freezing period to the recommended cold storage temperature
(BAFPS/PNS 71:2008)

4 Description

4.1 Product definition

4.1.1 Scallop meat

Fresh or Quick Frozen “Scallop Meat” is prepared by completely removing the adductor muscle from the shell and completely detaching all other viscera and roe from the adductor muscle of live scallops. Scallop meat contains no added water, phosphates and other ingredients. The adductor muscle is presented whole.

4.1.2 Roe-on scallop meat

Fresh or Quick Frozen “Roe-on Scallop Meat” are prepared by completely removing the adductor muscle and attached roe from the shell and detaching all the other viscera to the extent practical. Then roe should remain attached to the adductor muscle. “Roe-on scallop meat” contain no added water, phosphates, or other ingredients. Then adductor muscle and roe are presented whole.

4.1.3 Roe-on scallop meat shell-on

Fresh or Quick Frozen “Roe-on Scallop Meat” are prepared by retaining the shell where the adductor muscle and roe are remain attached.

4.1.4 Quick frozen scallop meat or quick frozen roe-on processed with added water and/or with solution of water and phosphates

“Quick Frozen Scallop Meat”, or “Quick Frozen Roe-on Scallop Meat”, with added water and/or solutions of water and phosphates that contain the products defined in 4.1.1 and 4.1.2, and with added water or phosphates solution.

4.2 Process definition

4.2.1 Scallop meat, roe-on scallop meat and roe-on scallop meat shell-on

4.2.1.1 After the preparation of “Scallop Meat”, “Roe-on Scallop Meat” or “Roe-on Scallop Meat shell-on” under good hygienic practices, the products are rinsed, drained and stored with a method that minimizes absorption of water to the extent that is technologically practicable.

4.2.1.2 For “roe-on scallop meat shell-on”, its shell should be washed free of mud, and all soft adhering organisms should be removed. Hard adhering organisms should also be removed when possible, care being taken not to chip lips of shells by vigorous washing. Washing should be carried out using [pressurized] clean seawater.

4.2.1.3 The fresh product shall be kept at 4°C or below. Product intended to be frozen shall be subjected to a quick freezing process using appropriate equipment. Quick freezing should not be regarded as complete until and unless the product temperature has reached -18°C or lower at the thermal center, after the stabilization of the temperature. It should in accordance with the requirements of the Code of Practice for the Processing and Handling of Quick Frozen Foods (CAC/RCP 8-1976).

4.2.1.4 The recognized practice of repacking quick frozen products under controlled conditions will maintain the quality of the product, followed by the reapplication of the quick freezing process as defined, is permitted. These products shall be processed and packaged so as to minimize dehydration and oxidation.

4.2.2 Quick frozen scallop meat or quick frozen roe-on meat processed with added water or phosphates solution

4.2.2.1 After the preparation of “Scallop Meat” or “Roe-on Scallop Meat” under good hygienic practices, the product is rinsed, drained and stored with a method that minimizes absorption of water to the extent that is technologically practicable. The fresh product shall be kept at 4°C or below. The product is subject to the addition of water and/or phosphate solution (e.g., soaked, sprayed). The amount of added solution shall be controlled and accurately measured for labelling purposes. Quick freezing should not be regarded as complete until and unless the product temperature has reached -18°C or lower at the thermal center, after the stabilization of the temperature. It should in accordance with the requirements of the Code of Practice for the Processing and Handling of Quick Frozen Foods (CAC/RCP 8-1976).

4.2.2.2 The recognized practice of repacking quick frozen products under controlled conditions which will maintain the quality of the product, followed by the reapplication of the quick freezing process as defined, is permitted. These products shall be processed and repacked so as to minimize dehydration and oxidation.

5 Presentation

Any presentation of the product shall be permitted provided that:

- (i) It meets all the requirements of this Standard, and it is adequately described on the label to avoid confusing or misleading the consumer.
- (ii) The scallop product may be packed by count per unit weight.
- (iii) If the scallop product pack exhibits the presence of broken pieces that is >5% of the sample weight, then the product must be presented as “pieces” or terms to that effect.

6 Essential composition and quality factors

6.1 Scallop meat and roe-on scallop meat

The product shall be prepared from the sound and wholesome scallops which are of a quality suitable to be sold fresh for direct human consumption.

6.2 Quick frozen scallop meat, or quick frozen roe-on meat with added water or phosphate solutions

The product shall be prepared from the sound and wholesome scallops which are of a quality suitable to be sold quick frozen for direct human consumption.

Added water or phosphate solution are permitted to the extent that the water uptake is accurately measured and labelled and their use is acceptable in accordance with the law or custom of the country in which the product is sold. Water shall be potable and phosphates shall be food grade.

6.3 Glazing

If glazed, the water used for glazing or for preparing glazing solutions shall be potable.

6.4 Final product

6.4.1 The final product shall meet the requirements of this standard when lots examined in accordance with Section 12-Lot Acceptance and comply with the provisions set out in Section 11-Definition of Defectives. Products shall be examined by the methods given in Section 10-Method of Sampling.

6.4.2 The final product shall conform to the following microbiological quality requirements in Table 1.

Table 1 – Microbiological safety requirements

Test/Microorganism	n	c	m	M
APC/SPC, cfu/g	5	0	5×10^5	-
<i>E. coli</i> , MPN/g	5	0	16	-
<i>Salmonella</i> /25 g	20	0	0	-
<i>V. parahaemolyticus</i> , cfu/g	10	1	10^2	10^3

Legend:

- n** -number of sample units selected from a lot of food to be examined
- c** -maximum allowable number of defective or marginally acceptable units
- m** -acceptable level of microorganism determined by a specified method; the values are generally based on levels that are achievable under GMP
- M** -level which when exceeded in one or more samples would cause the lot to be rejected as this indicates potential health hazard or imminent spoilage

Source: DOH-FDA Circular 2013-010. Revised Guidelines for the Assessment of Microbiological Quality of Processed Food. Table 11. Fish and Fishery Products – Fresh and Frozen Bivalve Molluscs

7 Food additives

7.1 Scallop meat, roe-on scallop meat and roe-on scallop meat shell-on

No food additives are permitted in the products defined in section 4.1.1, 4.1.2 and 4.1.3.

7.2 Quick frozen scallop meat, quick frozen roe-on scallop meat and quick frozen roe-on scallop meat shell-on with phosphates solution

Table 2 – Permitted additive for quick frozen roe-on scallop meat

INS Number	Additive Name	Maximum Level
Humectant/Sequestrant//Acidity Regulator/Stabilizer		
Phosphoric acid 338 (i); Sodium hydrogen phosphate 339 (i); Disodium hydrogen phosphate 339 (ii); Trisodium phosphate 339 (iii) Potassium dihydrogen phosphate 340 (i); Dipotassium hydrogen phosphate 340 (ii); Tripotassium phosphate 340 (iii); Calcium dihydrogen phosphate 341 (i); Calcium hydrogen phosphate (ii); Tricalcium phosphate (iii); Ammonium dihydrogen phosphate 342 (i); Diammonium hydrogen phosphate 342 (ii); Magnesium dihydrogen phosphate 343 (i); Magnesium hydrogen phosphate 343 (ii); Trimagnesium phosphate 343 (iii); Disodium diphosphate 450 (i); Trisodium diphosphate 450 (ii); Tetrasodium diphosphate 450 (iii); Tetra potassium diphosphate 450 (v); Dicalcium diphosphate 450 (vi); Calcium dihydrogen diphosphate 450 (vii); Pentasodium triphosphate 451 (i); Pentapotassium triphosphate 451 (ii); Sodium polyphosphate 452 (i); Potassium triphosphate 452 (ii); Sodium calcium polyphosphate 452 (iii) Calcium polyphosphate 452 (iv); Ammonium polyphosphate 452 (v);and Bone phosphate 542	Phosphates	2200 mg/kg as phosphorus

Legend: INS – International Numbering System for Food Additives

Source: Codex Stan 192-1995, Rev. 16-2015 – General Standard for Food Additives

8 Contaminants

8.1 The product covered by this Standard shall comply the maximum residue limits for veterinary drugs established by the CAC and the competent authority.

8.2 The product shall comply with the maximum level of marine biotoxin and heavy metals as specified in Table 3 and 4.

Table 3 – Acceptable level of marine biotoxin in scallops meat

Name of Biotoxin Group	Maximum level (mg/kg)
Saxitoxin (STX)	≤ 0.6
Okadaic acid (OA)	≤ 0.16
Domoic acid (DA)	≤20
Brevetoxin (BTX)	<200 mouse units or equivalent
Azaspiracid (AZP)	≤ 0.16
<i>Sources:</i> BAFPS/PNS 89:2011 – Live and Raw Bivalve Molluscs CODEX-STAN 292-2008, Rev.2015 –Live and Raw Bivalve Molluscs	

Table 4 – Acceptable level of heavy metals in scallops meat

Name of Heavy Metals	Maximum level (mg/kg)
Cadmium	1
Lead	1.5
Total mercury	0.5
<i>Sources:</i> BFAR-FAO 210 s. 2001 – Rules and Regulations on the exportation of fresh, chilled and frozen fish and fishery/aquatic products	

9 Hygiene and handling

The products shall be prepared and processed under hygienic conditions in accordance with the Revised Guidelines on Current Good Manufacturing Practice in Manufacturing, Packing, Repacking, or Holding Food (DOH AO No. 153 s. 2004) and its future amendments and relevant Codex standards such as:

- General Principles of Food Hygiene (CAC/RCP 1-1969);
- Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003);
- Guidelines on the Application of General Principles of Food Hygiene to the Control of Viruses in Food (CAC/GL 79-2012); and
- Guidelines on the Application of General Principles of Food Hygiene to the Control of Pathogenic Vibrio Species in Seafood (CAC/GL 73-2010).

10 Labeling

10.1 Name of the food

The products defined in 4.1.1, 4.1.2, 4.1.3 and 4.1.4 shall be named in accordance with the law or custom of the country in which the product is sold. For products covered by 4.1.4, "added water" shall be part of the name of the product.

In addition to the name identified in 10.1, the product shall be identified 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.

There shall appear on the label, reference to the forms of presentation described in section 5, in close proximity to the name of the product in such descriptive terms that adequately and fully describe the nature of the presentation to avoid misleading or confusing the consumer.

Water added as an ingredient to the scallop products shall be declared in the list of ingredients and the percentage of scallop meat and/or the percentage of added water shall clearly appear on the label, in accordance with the law and custom in the country in which the product is sold.

10.2 Net contents (glazed products)

Where the product has been glazed the declaration of net content shall be exclusive of the glaze.

10.3 Storage instructions

The label should include terms to indicate that the product shall be stored at 4°C or below for fresh products and at a temperature of -18°C or below for frozen processed in accordance with subsection 4.2 of this Standard.

10.4 Labelling of non-retail containers

Information specified above shall be given either on the container or in accompanying documents, except the name of the food, lot identification, and the name and address of the product or the packer as well as storage instructions shall always appear on the container.

However, the name and address may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

The product shall be identified 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.

10 Sampling, examination and analysis

10.1 Sampling

10.1.1 Sensory and physical examination and determination of added water

Attribute sampling plan, General Guidelines on the Sampling (CAC/GL 50-2004), Section 4.2, Table 10, using AQL 6.5%.

10.1.2 Determination of net weight

Sampling plans by varieties with unknown standard deviation (s-method), General Guidelines on Sampling (CAC/GL 50-2004), Section 4.3, Table 14.

10.2 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 10.3 through 10.7 and in the Annex A, and in accordance with the Guidelines for the Sensory Evaluation of Fish and Shellfish in Laboratories (CAC/GL 31-1999).

10.3 Determination of pieces

A scallop meat shall be considered as a scallop piece when the weight of that scallop meat is less than 50% of the average weight of 10 randomly selected unbroken scallop meats contained in the package. The percentage of scallop pieces in the sample unit can be determined by using the following equation:

$$\% \text{ Scallop Pieces} = \frac{\Sigma \text{ Weight of scallop pieces in a sample unit} \times 100}{\text{Weight of sample unit}}$$

10.4 Determination of count

When declared on the label, the count of the scallop meat shall be determined by counting the numbers of whole scallop meat (not including pieces defined above) in the package or representative sample thereof and dividing the count of whole scallop meat by the adjusted de-glazed weight (actual deglazed weight subtract the weight the de-glazed pieces) to determine the count per unit weight.

10.5 Determination of net weight

- (i) The net weight shall be determined in accordance with Official Method AOAC 963.18
- (ii) Block frozen products: AOAC Official Method 967.13 Drained Weight of Frozen Shrimp or Crab Meat, or AOAC Official Method 970.60 Drained Weight of Frozen Crab Meat. In addition to either AOAC procedure, block frozen scallops shall be thawed inside waterproof bags to prevent contact with, and absorption of, the water used to thaw the product.

10.6 Examination of parasites

The presence of readily visible parasites in a sample unit detected by normal visual inspection of the scallops.

10.7 Determination of the presence of viscera and roe

Scallop products are examined for the presence of remaining viscera attached to the adductor muscle or loose in the package and remaining roe (Scallop Meat only).

10.8 Determination of added water

In order to verify the conformity with subsections 6.1 and 6.2, a country may establish a scientifically supported criterion for the natural level of moisture in the meat scallop species harvested. Where country has relevant scientific information on the characteristics of the scallop species it exports, it may approach an importing country to discuss the implementation of this criterion on a species by species basis.

10.9 Determination of biotoxin

The method selected should be chosen on the basis of practicability and preference should be given to methods which have applicability for routine use.

10.9.1 Criteria for determination of toxin analogues by chemical methods

Methods shall meet the numerical criteria listed in Table 5 and may either meet the minimum requirement range, or Limit of detection (LOD) and Limit of Quantification (LOQ) criteria listed.

Table 5. Criteria for determination of toxin analogues by chemical methods

Toxin Group	Toxin	Minimum applicable range (mg/kg)	LOD (mg/kg)	LOQ (mg/kg)	Precision (RSD _R)	Recovery percent
Saxitoxin (STX) Group	STX	0.05-0.2	0.01	0.02	≤44%	50-130%
	(NEO)	0.05-0.2	0.01	0.02	≤44%	50-130%
	(dcSTX)	0.05-0.2	0.01	0.02	≤44%	50-130%
	GTX1	0.05-0.2	0.01	0.02	≤44%	50-130%
	GTX2	0.1-0.5	0.03	0.06	≤38%	50-130%
	GTX3	0.1-0.5	0.03	0.06	≤38%	50-130%
	GTX4	0.05-0.2	0.01	0.02	≤44%	50-130%
	GTX5	0.1-0.5	0. re03	0.06	≤38%	50-130%
	GTX6	0.1-0.5	0.03	0.06	≤38%	50-130%
	dcGTX2	0.1-0.5	0.03	0.02	≤38%	50-130%
	dcGTX3	0.1-0.5	0.03	0.06	≤38%	50-130%
	C1	0.1-0.5	0.03	0.06	≤38%	50-130%
	C2	0.1-0.5	0.03	0.06	≤38%	50-130%
	C3	0.5-1.5	0.1	0.02	≤32%	50-130%

	C4	0.5-1.5	0.1	0.02	<=32%	50-130%
Okadaic Acid (OA) Group	OA	0.03-0.2	0.01	0.02	<=44%	60-115%
	DTX	0.03-0.2	0.01	0.02	<=44%	60-115%
	DTX2	0.1-0.5	0.03	0.06	<=38%	60-115%
Domoic Acid	DA	14-26	2	4	<=20%	80-110%
Azaspiracid (AZA) Group	AZA1	0.03-0.2	0.01	0.02	<=44%	40-120%
	AZA2	0.03-0.2	0.01	0.02	<=44%	40-120%
	AZA3	0.03-0.2	0.01	0.02	<=44%	40-120%

Total toxicity is estimated as the sum of the molar concentrations of detected analogs multiplied by the relevant specific toxicity equivalency factors (TEFs). Internationally scientifically validated TEF's can be found on the FAO website. Information on the TEFs could be incorporated in this standard at a future date.

Methods should be validated and used for the relevant toxin analogues that may contribute to total toxicity. Currently known toxin analogues to consider are listed in Table 5.

Where toxin analogues that are not listed in Table 1 are determined the competent authority must assess the contribution of these analogs to total toxicity while conducting further investigations.

10.9.2 Biological and functional methods to determine paralytic shellfish toxicity

Provision	Method
Paralytic shellfish toxicity	AOAC 959.08
Paralytic shellfish toxicity	AOAC 2011.27

10.10 Determination of heavy metals

According to the Codex Recommended Method of Analysis and Sampling (CODEX STAN 234-1999) or an equivalent method of analysis

11 Definition of defectives

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

11.1 Foreign matter

The presence in the sample unit of any matter which has not been derived from scallops (excluding packing material), 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.

11.2 Deep dehydration

Greater than 10 % of the weight of the scallop meat or greater than 10% of the surface area of the block exhibits excessive loss of moisture clearly shown as white or yellow abnormality on the surface which masks the color of the flesh and penetrates below the surface, and cannot be easily removed by scraping with a knife or a sharp instrument without unduly affecting the appearance of the product.

11.3 Odor/flavor/texture/color

Scallop meat affected by persistent and distinct objectionable odor, flavor, textures or colors indicative of decomposition and/or rancidity; or other objectionable odor, flavor, textures or colors not characteristic of the product.

11.4 Parasites

Presence of parasites at an objectionable level.

11.5 Objectionable matter

The presence of sand, shell or other similar particles that is visible in the thawed state or detected by chewing during sensory examination at an objectionable level.

11.6 Exceeding level of added water

Level of added water exceeding that declared in the label.

12 Lot of acceptance

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

- (i) the total number of defective sample units as classified according to Section 11 does not exceed the acceptance number (c) of the appropriate sampling plan in Section 10.1;
- (ii) where appropriate, the total number of sample units not meeting the count designation or presentation as defined in Section 5 does not exceed the acceptance number © of the appropriate sampling plan in the section 10.1. In addition, the average count per unit weight shall be within the declared count range;
- (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; and
- (iv) the essential composition and quality factors, food additives, contaminants, hygiene and handling and labelling requirements of sections 6, 7, 8, 9 and 10 are met.

ANNEX A

Sensory and Physical Examination

1. Complete net weight determination, according to defined procedures in section 8.5.
2. Examine the frozen scallop product in the sample unit or the surface of the block for the presence of dehydration. Determine the percentage of scallop meat or surface affected.
3. Thaw using the procedure described in section 10.5 and individually examine each scallop product in the sample unit for the presence of foreign matter, objectionable matter, and presentation defects.
4. Determine the weight of scallop product affected by presentation defects.
5. Examine product for pieces and count declarations in accordance with procedures in section 10.3 and 10.4
6. Assess the scallop product for odor and parasites as required.
7. A small portion of the sample unit (100g to 200g) is cooked without delay and the odor/flavor/texture and presence of sands is determined. If necessary, additional portions may be cooked and examined for confirmation.

Reference

- BAFPS/PNS 89:2011. Philippine National Standard for Live and Raw Bivalve Molluscs. Bureau of Agriculture and Fisheries Standard. Department of Agriculture. Quezon City, Philippines
- CAC/RCP 8-1976, Code of Practice for the Processing and Handling of Quick Frozen Foods. Codex Alimentarius Commission. Food and Agriculture Organization/World Health Organization. Rome, Italy. (www.codexalimentarius.org)
- CAC/RCP 1-1969, Rev. 3-2003. Amend 1999. General Principles of Food Hygiene. Codex Alimentarius Commission. Food and Agriculture Organization/World Health Organization. Rome, Italy. (www.codexalimentarius.org)
- CAC/RCP 52-2003, Rev. 6-2011, Amend.2-2013. Code of Practice for Fish and Fishery Products. Codex Alimentarius Commission. Food and Agriculture Organization/World Health Organization. Rome, Italy. (www.codexalimentarius.org)
- CAC/GL 31-1999. Guidelines for the Sensory Evaluation of Fish and Shellfish in Laboratories. Codex Alimentarius Commission. Food and Agriculture Organization/World Health Organization. Rome, Italy. (www.codexalimentarius.org)
- CAC/GL 50-2004. General Guidelines on Sampling. Codex Alimentarius Commission. Food and Agriculture Organization/World Health Organization. Rome, Italy. (www.codexalimentarius.org)
- CAC/GL 73-2010. Guidelines on the Application of General Principles of Food Hygiene to the Control of Viruses in Food. Codex Alimentarius Commission. Food and Agriculture Organization/World Health Organization. Rome, Italy. (www.codexalimentarius.org)
- CODEX STAN 150-1985, Amend 3-2006. Standard for Food Grade Salt. Codex Alimentarius Commission. Food and Agriculture Organization/World Health Organization. Rome, Italy. (www.codexalimentarius.org)
- CODEX STAN 192-1995, Rev. 16-2015. General Standard for Food Additives Foods. Codex Alimentarius Commission. Food and Agriculture Organization/World Health Organization (FAO/WHO) Joint Programme. Rome, Italy. (www.codexalimentarius.org)

*For Public Consultative Meeting
August 14, 2017*

569 CODEX STAN 315-2014, Amend.1-2016. Standard for Fresh and Quick Frozen Raw
570 Scallop Products. Foods. Codex Alimentarius Commission. Food and Agriculture
571 Organization/World Health Organization Joint Programme. Rome, Italy.
572 (www.codexalimentarius.org)

573 FDA Circular No. 2013-010. Revised Guidelines for the Assessment of Microbiological
574 Quality of processed foods. Food and Drug Administration. Department of
575 Health. Muntinlupa City, Philippines.

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