CHAPTER 3, STANDARD 4

FRESH AND FROZEN SCALLOP STANDARD

1. INTRODUCTION

This standard for fresh or frozen scallop meats, scallops with roe attached, and whole scallops derives its authority from the Fish Inspection Act and Regulations. It defines minimum acceptability for taint, decomposition, unwholesomeness and other requirements, other than weight, as defined in the Fish Inspection Act and Regulations and describes methods for determining that acceptability.

2. SCOPE

This standard applies to all fresh or frozen or previously frozen shucked-scallop meats (adductor muscle) with or without roe attached and whole scallops from any species of the family Pectinidae.

Fresh or frozen scallops shall be prepared from sound, wholesome raw material processed using good manufacturing practices.

Documents used to determine good manufacturing practice and compliance include:

a) Recommended International Code of Practice - General Principles of Food Hygiene, CAC/RCP 1-1969 Rev. 1.

b) Codex Alimentarius Sampling Plans for Prepackaged Foods (AQL 6.5) CAC/RM 42-1969.

c) Recommended International Code of Practice for Fresh Fish, CAC/RCP 9-1976.

d) Recommended International Code of Practice for Frozen Fish, CAC/RCP 16-1978.

e) Code of Practice - General Principles of Food Hygiene for Use by the Food Industry in Canada, Health Protection Branch, Health and Welfare Canada, 1983.

3. NOMENCLATURE

The name of the product shall be "Scallops" or "Scallop Meats" except as noted below:

a) Scallops of the species Argopecten gibbus and Argopecten irradians shall be designated as "Calico Scallops" and "Bay Scallops" respectively.

b) If desired, "X Scallops" may be used where "X" is the name of a country or geographic area from which the scallops originate, or where "X" is the common name of the species.

c) Whole scallops and scallops with roe attached shall be designated as such.

d) Pieces of scallop meats shall be identified with an appropriate name such as "Scallop Pieces".

e) Any descriptive terms used must accurately represent the contents of the container.

f) Green Tube is defined as the rear portion of the intestinal tract which is normally green in colour but may be white or gray.

g) Viscera is defined as all internal organs including roe, but does not include the rear portion of the intestinal tract, referred to as the "green tube".

h) Adductor Muscle With Roe Attached: It is recognised that viscera for Adductor Muscle With Roe Attached means all viscera except the roe.

4. FORMS OF PRODUCT PRESENTATION

4.1 Adductor Muscle Only

a) Fresh - Whole adductor muscles.

b) IQF - Individually quick-frozen whole adductor muscles.

c) Block - Whole adductor muscles frozen together in a uniform block.

4.2 Adductor Muscle with Roe Attached

a) Fresh - Whole adductor muscles with roe attached.

b) IQF - Individually quick-frozen whole adductor muscles with roe attached.

c) Block - Whole adductor muscles with roe attached frozen together in a uniform block.

4.3 Whole Scallops

a) Fresh - Live scallops marketed in the shell.

b) IQF - Individually quick-frozen whole scallops marketed in the shell.

4.4 Other Presentations

Any other presentation of the product may be permitted provided that it:

a) is sufficiently distinctive from the forms of presentation set out above;

b) meets all Canadian regulatory requirements; and

c) is adequately described on the label and in accordance with all regulatory labelling requirements.

5. SAMPLING

The sampling and tolerance plans, found in the Sampling Section of the Fish Products Standards and Methods manual, shall be used to determine the acceptability of the lot. The sampling plans dictate the minimum sample size to be taken. If in the opinion of the inspector it is necessary to obtain more than the minimum sample size specified, the number of sample units taken must correspond to a sample size in the plan with a corresponding acceptance number.

5.1 Sampling of lots for the sensory examination of the product shall be in accordance with the FAO/WHO Codex Alimentarius Sampling Plan for Prepackaged Foods (AQL 6.5) (CAC/RM 42-1969) except that a lower

acceptance number for decomposition shall be used as indicated in the sampling tables. The tables specify the minimum number of sample units to be used for the following types of inspections:

a) Level I - Sensory examination of all products subject to inspection other than lots which are subject to re-inspection.

b) Level II - Sensory examination of all products which are under re-inspection.

5.2 Size of Sample Unit

The sample unit shall consist of a container of scallops and the entire contents thereof.

For IQF and fresh bulk packages 2.00 kilograms or greater, a 1 kilogram sub-sample of product may be obtained if the sub-sample is representative. When sub-samples are taken, each sub-sample shall be obtained from a different unit.

If a representative sub-sample cannot be obtained the entire unit must be examined.

6. DESCRIPTION OF DEFECTS

6.1 Taint

A unit will be considered tainted when more than 10% of the actual weight is affected by any of the following conditions:

a) Rancid

Odour characterised by the distinct or persistent odour of oxidized oil; or

Flavour characterised by that of oxidized oil which leaves a distinct bitter aftertaste.

b) Abnormal

Distinct and persistent uncharacteristic odours or flavours such as metallic, burnt or acrid and not defined as rancid or decomposed.

6.2 Decomposition

A unit will be considered decomposed when more than 10% of the actual weight is affected by the following condition:

Odour or Flavour

Persistent, distinct and uncharacteristic odour or flavour associated with spoilage, including but not limited to the following:

ammonia, bilge, faecal, fruity, hydrogen sulphide, musty, putrid, saltfish-like, vegetable, turnip or yeasty.

6.3 Taint/Decomposed

A sample unit shall be classified as defective when more than 10% of the actual weight of the sample unit is affected by any combination of tainted or decomposed conditions.

6.4 Unwholesome

6.4.1 Foreign Material

a) Critical Foreign Material

A lot will be considered defective for all forms of product presentation when any of the following conditions are found:

i) the presence of any material which poses a threat to human health (such as glass, etc.); or

ii) distinct and persistent odour or flavour of any material which poses a threat to human health (such as solvents, fuel oil, etc.).

b) Foreign Material

A unit will be considered defective for all forms of product presentation when the following condition is found:

the presence of readily detectable material which has not been derived from scallops but does not pose a threat to human health (such as insect pieces, wood, etc., except sand and

seaweed as described below).

c) Habitat-Related Foreign Material

A unit will be considered defective for all forms of product presentation when any of the following conditions are found:

i) piece(s) of seaweed which measures 25 mm in any dimension singularly or in combination, based on a unit size of 1 kg and pro-rated to smaller or larger sample units; or

ii) the presence of sand affecting more than 10% of the sample unit by weight.

6.4.2 Undesirable Parts

A unit will be considered defective for all forms of product presentation when the following condition is found:

piece(s) of shell fragments which measure greater than 10 mm in any dimension singularly or in combination, based on a unit size of 1 kg and pro-rated to smaller or larger sample units.

6.4.3 Other Defects

A lot will be considered defective for all forms of product presentation when any of the following conditions are found:

a) Moisture Content

Scallop meats exceeding the action level of 81.0% for moisture content.

b) Viscera Excluding Green Tube

Scallop meats, scallops with roe attached, and whole scallops must satisfy the requirement of the policy relating to biotoxins as determined by Health Canada and documented in the Canadian Guidelines for Chemical Contaminants and Toxins in Fish and Fish Products, Fish Seafood and Production Division, Canadian Food Inspection Agency (see Appendix A).

The requirements of the Canadian Shellfish Sanitation Program (CSSP) to control marine biotoxins in Adductor Muscle With Roe Attached and Whole Scallops (live in shell) must also be satisfied.

Note: The presence of a trace amount of membrane or a stain, due to viscera, roe, etc. is not a defect for the purpose of this standard.

A unit will be considered defective for all forms of product presentation when any of the following conditions are found:

c) Workmanship Defect - Viscera Excluding Green Tube

The presence of viscera affecting more than 10% of the sample by weight, where it has been demonstrated that the toxicity associated with the viscera satisfies the requirements of the policy relating to biotoxins according to section 6.4.3 b).

d) Dehydration (Freezer Burn)

i) Block: More than 10% of the surface area of the sample unit is affected by dehydration.

ii) IQF: More than 10% of the scallops by weight, in the sample, are affected by dehydration.

e) Parasites

For packs of 1 kg and greater, when the number of parasites per kg of sample unit is equal to or greater than 2.

For packs of less than 1 kg, when an average parasite per kg of the total sample is equal to or greater than 1.

Example:

A sample consisting of 13 sample units each weighing 500 grams would be considered defective if 7 or more parasites were found.

Total weight of sample: 500 g x 13 = 6.5 kg
Parasites per kilogram: 7 parasites/6.5 kg = 1.07

Calico Scallops: For the species *Agropectin gibbus*, the presence of

parasites affecting equal to or greater than 10% of the sample by weight.

f) Green Tube

When the rear portion of the intestinal tract, the "green tube", is longer than the catch muscle and more than 10% by weight of the scallops in the pack are affected by the presence of the "green tube" (see Appendix B).

6.5 Standard of Identity

a) Size Designation

When a count range is declared, a sample unit will be considered defective if the count is greater than the range specified on the label.

b) Scallop Meats

A 5% tolerance by sample weight will be applied to the presence of pieces of scallop meats found in scallop packs. Product exceeding this tolerance shall be identified with an appropriate name such as "Scallop Pieces".

"Scallop Pieces"

When the product is graded according to count, a scallop is considered to be a scallop piece when the weight of the scallop piece is less than fifty percent (50%) of the average weight of ten (10) whole scallops representing the highest count in the pack.

Example: 30-40 count pack

- Average weight of ten (10) whole scallops representing the highest count in the pack: In this example, add together the weight of ten whole scallops representing the 40 count and divide the total weight by ten. (11.4 + 11.6 + 11.4 + 11.6 + 11.8 + 11.6 + 11.8 + 11.6 + 11.6 + 11.4)/10 = 11.58 grams

- Fifty percent (50%) of the average weight: 11.58 x .5 = 5.79 grams

- Scallop Piece: any piece of scallop less than 5.79 grams.

When the product is not graded according to count, a scallop will be considered to be a scallop piece when the weight of the scallop piece is less than fifty percent (50%) of the average weight of ten (10) whole scallops contained in the pack.

Example:

- average weight of ten (10) whole scallops contained in the pack: Add together the weight of ten whole scallops in the pack and divide the total weight by ten. (9.1 + 9.3 + 9.5 + 9.5 + 9.4 + 9.6 + 9.4 + 9.3 + 9.2 + 9.2)/10 = 9.35 grams

- fifty percent (50%) of the average weight: 9.35 x .5 = 4.67 grams

- Scallop Piece: any scallop piece less than 4.67 grams.

7. EXAMINATION METHODS

The methodology described in this section outlines the procedure for the examination of scallop products. The examination shall be made on final products in the fresh, frozen and/or defrosted state for tainted, decomposed or unwholesome conditions and for failure to meet standards of identity.

7.1 Examination for Frozen State Defects

The frozen scallops in the container are examined for the presence of freezer burn, i.e., dehydration which can only be removed with a knife or other sharp instrument.

7.1.1 Dehydration - Block

The area affected by dehydration is measured and the total surface area of the block is determined. Inspectors shall then determine the percent area affected by using the following calculation:

$$\% \text{ of dehydration} = \frac{\text{Area affected}}{\text{Total surface area}} \times 100$$

7.1.2 Dehydration - IQF

In the case of IQF scallops, the weight of individual scallops affected by dehydration is determined. The total weight of scallops in the sample unit is also determined. Inspectors shall then calculate the percentage of scallops affected by using the following calculation:

$$\% \text{ of scallops affected} = \frac{\text{Weight of affected scallops}}{\text{Weight of scallops in sample unit}} \times 100$$

7.2 Examination of Fresh or Defrosted Scallop Packs

The fresh or defrosted sample unit is examined in its entirety for defects.

7.3 Determining the Cause for Rejection of a Sample Unit

Scallops within the sample units shall be classified according to whether they are acceptable or not acceptable. If not acceptable, the scallops will be classified as decomposed, tainted or unwholesome. Should the scallops be both tainted and decomposed, for the purpose of the application of this standard and the interpretation of the sampling plan, the scallops are deemed to be decomposed. In the case of tainted and/or decomposed scallops, the affected scallops are weighed to determine the percent of the sample unit which is affected in each category. The calculation is performed as follows:

$$\% \text{ Decomposed scallops} = \frac{\text{Weight of scallops affected}}{\text{Actual weight of sample}} \times 100$$

$$\% \text{ Tainted scallops} = \frac{\text{Weight of scallops affected}}{\text{Actual weight of sample}} \times 100$$

8. CLASSIFICATION OF "DEFECTIVES"

A sample unit of scallops shall be classified as defective when one or more of the following conditions are encountered:

a) **Decomposed:** When more than 10% of the actual weight of the scallops, as calculated in section 7.3 are found to be decomposed, the sample unit is considered decomposed as described in section 6.2.

b) **Tainted:** When more than 10% of the actual weight of the scallops, as calculated in section 7.3 are found to be tainted, the sample unit is considered tainted as described in section 6.1.

c) **Tainted/Decomposed:** The sample unit is considered tainted/decomposed when assessed individually and the quantity of tainted or decomposed scallops is each less than 10%, as calculated in section 7.3, but when in combination the quantity of tainted and decomposed scallops exceeds 10% of the actual weight, the sample unit is tainted/decomposed as described in section 6.3.

d) **Unwholesome** when**:**

i) the sample unit is affected by the presence of **foreign material** which exceeds the tolerance described in section 6.4.1 b) or c); or

ii) the sample unit is affected by the presence of **undesirable parts** which exceeds the tolerance described in 6.4.2; or

iii) the sample unit is affected by the presence of **other defects** which exceeds the tolerances as described in section 6.4.3.

e) **Standard Of Identity** when:

i) the count of scallop meats in the sample unit is greater than the declared count; or

ii) a unit labelled as scallop meats contains more than 5% by weight of Scallop Pieces.

9. LOT ACCEPTANCE

A lot will fail the requirements of this standard when:

a) any single instance of critical foreign matter is encountered; or

b) an occurrence of viscera presents a health and safety hazard due to the presence of marine biotoxin; or

c) scallop meats exceed the action level for moisture content pursuant to the policy in the Fish Products Inspection Manual; or

d) the total number of sample units found defective for tainted, decomposed or unwholesome conditions, individually or in combination, exceeds the acceptance number for the sample size designated in the sampling plans; or

e) the total number of sample units found defective for decomposition exceeds the acceptance number shown in parentheses for the sample size designated in the sampling plans; or

f) the total number of sample units found defective for standard of identity exceeds the acceptance number for the sample size designated in the sampling plans.

APPENDIX A

MARINE BIOTOXINS IN SCALLOPS

Marine biotoxins constitute a health and safety hazard associated with scallops. Marine biotoxins accumulate predominantly in the viscera of the scallop, although low levels of amnesic shellfish poison and paralytic shellfish poison may occur in the adductor muscle. Processors and importers of scallops in Canada are required to control the chemical hazard of marine biotoxins in scallops.

Control is accomplished by:

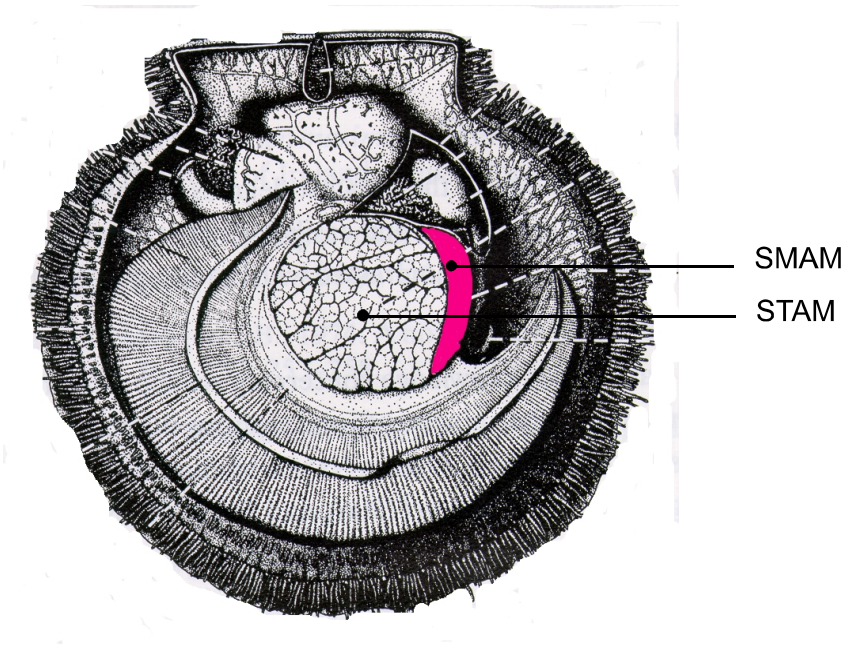
a) producing scallops which are free of viscera, as determined by a sampling plan described by the International Commission on Microbiological Specifications for Foods[1] (ICMSF). That is, for any lot size, sample size (n) = 5; acceptance number (c) = 0; or

b) if lots contain viscera in excess of the incidence described above in (a), test the lot for toxicity in accordance with the Canadian Guidelines for Chemical Contaminants and Toxins in Fish and Fish Products.

[1] See ICMSF "Microorganisms in Foods 2, Sampling for Microbiological Analysis: Principles and Specific Applications", Ch. 3, Table 2, pg. 22.

APPENDIX B

ADDUCTOR MUSCLE IN SCALLOPS



SMAM: Smooth adductor muscle also known as the "**catch muscle**"
STAM: Striated adductor muscle also known as the "**scallop meat**"