CHAPTER 3, STANDARD 2

FRESH & FROZEN SHRIMP OR PRAWN STANDARD

1. INTRODUCTION

This standard for fresh and frozen shrimp* derives its authority from the Fish Inspection Regulations. It defines minimum acceptability of fresh and frozen shrimp 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.

*NOTE: Throughout this document, the term "shrimp" will be used to denote both shrimps and prawns.

2. SCOPE

This standard applies to fresh, frozen and previously frozen shrimp prepared from species of any of the following families:

PENAEIDAE, PANDALIDAE, CRANGONIDAE, PALAEMONIDAE.

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

Documents used to determine good manufacturing practice and compliance include:

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

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

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

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

5) Recommended International Code of Practice for Quick Frozen Shrimps or Prawns, CAC/RS 92-1976.

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

7) Good Manufacturing Practices (GMP) - Shrimp Processing, Inspection Services, Department of Fisheries and Oceans, 1989.

3. NOMENCLATURE

a) The name of the product shall be "Shrimp", "Shrimps" or "Prawns".

b) If desired, "X Shrimp", "X Shrimps" or "X Prawns" may be used where the "X" is the name of a country or a geographic area from which the shrimps originate, or where "X" is the common name of the species in accordance with the applicable sections of the Codex Alimentarius Recommended International Code of Practice for Quick-Frozen Shrimps.

c) Any descriptive terms used, including those denoting style of presentation and size designation, must accurately reflect the contents of the unit. Note: If a size designation is declared, it must be expressed in terms of a count range. Terms such as "medium", "jumbo", etc. are unacceptable unless accompanied by a count range.

4. FORMS OF PRODUCT PRESENTATION

Fresh and frozen shrimp may contain salt, lemon juice, citric acid, seasonings, sugars and other ingredients, such as permitted additives.

4.1 Style of Presentation

Shrimp may be presented in the following ways:

a) Whole
Shrimp which have the head, shell and tail fan on.

b) Headless
Shrimp on which the head has been completely removed, but with shell and tail fan on.

c) Peeled, tail fan on
Shrimp on which the head and shell have been removed down to the last segment, but with the shell on the last segment and the tail fan present.

d) Peeled, tail fan removed
Shrimp with the head, shell and tail fan removed.

e) Peeled and Deveined (Peeled and Cleaned)
In addition to having the head and shell removed, the vein has been removed.

f) Butterfly Style (Fantail)
In addition to having the head, shell and vein removed, the peeled segments of the shrimp have been split longitudinally through the dorsal axis into two sections which remain attached on the ventral side.

g) Broken (Pieces)
Pieces of shrimp containing less than 5 segments, for counts less than 150/kg (70/lb); or

pieces of shrimp containing less than 4 segments, for counts greater than 150/kg (70/lb).

4.2 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; and

b) meets all other Canadian regulatory requirements; and

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

5. SAMPLING

The sampling and tolerance plans at the front of this manual shall be used to determine the acceptability of the lot. The sampling plans dictate the minimum sample size to be taken. If necessary, in the opinion of the inspector, more than the minimum sample size specified may be taken.

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 examinations of all products subject to inspection other than lots which are subject to reinspection.

b) Level II - Sensory examinations of all products which are under reinspection.

5.2 Size of Sample Unit

The sample unit shall consist of a package of shrimp and the contents thereof. For package sizes of 2.27 kg (5 lb.) or greater, it is permissible to examine a sub-unit consisting of at least 1 kg of product, if, in the Inspector's opinion, a representative sub-unit can be obtained.

6. DESCRIPTION OF DEFECTS

6.1 Taint

A unit will be considered tainted when more than 10% of the number of shrimps in the unit are affected by any of the following conditions:

a) Rancid
Odour characterized by the distinct or persistent odour of oxidized oil; or

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

b) Abnormal
Distinct and persistent uncharacteristic odours or flavours such as burnt or acrid, metallic, or associated with feed, and not defined as rancid or decomposed.

6.2 Decomposition

A unit will be considered decomposed when more than 10% of the number of shrimps in the unit are affected by any of the following conditions:

a) Odour or flavour
Persistent, distinct and uncharacteristic odour or flavour including but not limited to the following:

ammonia, musty, yeasty, vegetable, sour, faecal, hydrogen sulphide, putrid.

b) Discolouration
Shrimp with distinct yellow, green or black, singly or in combination, discolouration of the flesh; or

Shrimp with faded pigment or liver stain in association with odour or flavour of decomposition.

c) Texture
Textural breakdown characterized by muscle structure which is mushy.

6.3 Unwholesome

a) Critical Foreign Material
A lot will be considered defective when any of the following conditions are found:

the presence of any material which has not been derived from shrimp and which poses a threat to human health (such as glass, etc.); or

distinct and persistent odour or flavour of any material which has not been derived from shrimp and which poses a threat to human health (such as solvents, fuel oil, etc.).

b) Foreign Material
A unit will be considered defective when the following condition is found:

the presence of readily detectable (without magnification) material which has not been derived from shrimp but does not pose a threat to human health (such as insect pieces, sand, etc.).

c) Other Defects
A unit will be considered defective when any of the following conditions are found:

1) **Blackspot**
In the case of shell-on shrimp, 25% or more of the shrimps in the unit contain distinct areas of black discolouration (melanosis) which cover greater than 10% of the area of the shell.

2) **Dehydration (Freezer burn)**
10% or more of the shrimp in the unit are affected by dehydration or freezer burn.

6.4 Failure to Meet a Standard of Identity

a) Broken Shrimp
A unit will be considered defective for broken shrimp if it contains greater than 5% m/m of broken shrimp when examined by the method outlined in section 7.

b) Deveining (Cleaning)
In the case of deveined shrimp, a unit will be considered defective for deveining if it is found to contain more than 5% by count of improperly cleaned or deveined shrimp, when examined using the method outlined in section 7.

c) Size Designation
When a count range is declared, a unit will be considered defective for size designation if the count is greater than the range specified on the label, when examined by the method outlined in section 7.

7. EXAMINATION METHODS

7.1 Complete net weight determination, according to defined procedures (deglaze as required). If shrimp are breaded, examine for coating defects as defined in the standard for breaded products; remove breading as required according to defined procedures.

NOTE: For all product examinations conducted using sub-units, base all calculations on the actual weight or number of shrimps in the sub-unit, as appropriate.

7.2 Examine each unit for compliance to standards of identity as required.

When a size designation (count per lb or kg) is declared, count the number of whole shrimp present. Calculate the whole shrimp per lb or kg using the following formula:

$$\frac{\text{number of whole shrimp in unit}}{\text{actual thawed wt. of unit (lb or kg)}} = \text{\# shrimp/lb or kg.}$$

During this procedure, separate broken pieces and determine the percentage of broken shrimp present. The percentage of broken shrimp may be calculated using the following formula:

$$\frac{\text{weight of broken shrimp}}{\text{actual thawed weight of unit}} \times 100 = \text{\% broken shrimp}$$

Where shrimp is further described on the label, the product is examined for compliance. For example, compliance with the requirements for deveining is determined as follows:

$$\frac{\text{number of improperly deveined shrimp}}{\text{number of shrimp in unit}} \times 100 = \text{\% improperly deveined}$$

7.3 Examine shrimp for presence of dehydration by counting the number of shrimps in the unit containing any dehydration which can only be removed with a knife or other sharp instrument. Determine the percentage affected using the following formula:

$$\frac{\text{number of shrimp affected}}{\text{number of shrimp in unit}} \times 100 = \text{\% affected by dehydration}$$

7.4 Examine package and thawed shrimp for presence of foreign material. Assess shell-on shrimp for presence of blackspot; calculate the percentage of shrimp affected in the unit.

7.5 Assess colour. Calculate the percentage of shrimp with distinct yellow appearance and black discolouration of the flesh and shrimp affected by faded pigment or liver stain when in association with an odour or flavour of decomposition.

7.6 Assess odour. Assess flavour and texture as required.

Cooking procedures may be used for **reinspection** purposes only when, in the opinion of the inspector, cooking is required to define the flavour in order to render a decision on the acceptance or rejection of the sample unit. The unit is cooked according to the following procedure. For all unit sizes, cook the entire unit. This may be done using a boil-in-bag procedure, or by steaming or microwaving in a closed container, until the protein at the centre of the shrimp has coagulated. (Depending on the method chosen and the equipment available, cooking times may vary. For example, a 500 g thawed sample unit should require a cooking time of 3-4 minutes at a microwave power of 700 watts; the unit should be stirred once during this procedure to ensure even heating).

Let cool slightly, then assess odour, flavour and texture of cooked unit. Calculate percentage of unacceptable shrimps in the unit.

Note: When the amounts of tainted or decomposed shrimps are <u>each</u> less than 10%, but <u>exceed 10% when combined</u>, the unit is rejected, and is subject to the higher acceptance number (AQL 6.5) in the sampling and acceptance plan.

7.7 Record any defect for that unit on the appropriate worksheet.

8. CLASSIFICATION OF "DEFECTIVES"

A sample unit shall be classified as defective when it fails the defects for decomposition, tainted or unwholesome conditions or the criteria for the standards of identity as described in section 6, or when more than 10% of the declared weight of the sample unit is affected by any combination of tainted or decomposed conditions.

9. LOT ACCEPTANCE

A lot will be considered unacceptable when:

a) any single instance of critical foreign matter occurs; or

b) the total number of sample units found defective for taint, decomposition or unwholesomeness, individually or in combination, exceeds the acceptance number for the sample size designated in the sampling plans; or

c) 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

d) the total number of sample units found defective for standards of identity (style of presentation) and size designation or count range (if a size designation or count range is declared), exceeds the acceptance number for the sample size designated in the sampling plans.