

codex alimentarius commission

FOOD AND AGRICULTURE
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WORLD HEALTH
ORGANIZATION

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ALINORM 79/18

Appendices II - V

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX ALIMENTARIUS COMMISSION

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REPORT OF THE THIRTEENTH SESSION OF THE
CODEX COMMITTEE ON FISH AND FISHERY PRODUCTS

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DRAFT STANDARD FOR CANNED MACKEREL AND JACK MACKEREL
(advanced to Step 8)

1. SCOPE

This standard applies to canned mackerel and canned jack mackerel packed in water or oil or other suitable packing medium. It does not apply to speciality products where mackerel or jack mackerel constitute less than 50% m/m of the net contents of the can.

2. DESCRIPTION

2.1 Product Definition

Canned mackerel and canned jack mackerel are the products:

2.1.1 Prepared from species of the following families and genera:

<u>Mackerel</u>	<u>Jack Mackerel</u>
Scombridae:	Carangidae:
Scomber	Trachurus
Rastrelliger	Decapterus

The pack shall not contain a mixture of genera but may contain a mixture of species of the same genus which have similar organoleptic qualities.

2.1.2 Packed in water or oil or other suitable packing media in hermetically sealed containers.

2.1.3 Processed by heat so as to prevent spoilage.

2.2 Presentation

2.2.1 Forms of packed fish

The fish pre-cooked or not, smoked or unsmoked, fried or unfried shall be presented in one of the following forms of pack:

2.2.1.1 Dressed fish - eviscerated fish with heads and tails removed (small fish may have the tails on), but with skin and bone. There shall be no free pieces other than a piece or segment added to fill the container.

2.2.1.2 Filletts - slices of fish with or without skin of irregular size and shape, which are removed from the carcass by cuts made parallel to the back bone and sections of such filletts cut so as to facilitate packing.

2.2.1.3 Solid Pack - complete transverse segments of dressed fish with or without skin and bone. There shall be no free pieces other than a piece or segment added to fill the container.

2.2.1.4 Cutlets - complete or half transverse segments of dressed fish. There shall be no free pieces other than a piece or segment added to fill the container.

2.2.1.5 Middle-cut - complete transverse segments of dressed fish not including any part of the belly cavity. There shall be no free pieces other than a piece or segment added to fill the container.

2.2.1.6 Chunks - skinned and deboned pieces of fish substantially consisting of two or more unseparated flakes.

2.2.1.7 Pieces - irregular bite-sized portions (bits).

2.2.1.8 Flake or flakes - pieces of the natural subdivision of skinned and deboned fish muscle of which the muscle structure has been retained.

2.2.1.9 Grated, shredded or minced - comminuted fish not including skin or bone and not having the consistency of a paste.

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2.2.2 Form of packing media

The product shall be presented in one of the following packing media with or without permitted optional ingredients.

- 2.2.2.1 Own juice
- 2.2.2.2 Brine or water
- 2.2.2.3 Edible oil with own juice
- 2.2.2.4 Edible oil
- 2.2.2.5 Sauce
- 2.2.2.6 Marinades with or without wine
- 2.2.2.7 Aspic (jelly)

2.2.3 Other Presentations

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

- (i) is sufficiently distinctive from other forms of presentation laid down in this standard;
- (ii) meets all the other requirements of this standard;
- (iii) is adequately described on the label to avoid confusing or misleading the consumer.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 Raw Material

The product shall be prepared from clean, wholesome and sound fish belonging to one of the genera listed under sub-section 2.1.1. The raw material may be either fresh, frozen or smoked and shall be of a quality suitable for human consumption.

3.2 Packing media

Own juice, brine, water^{1/}, edible oil with or without own juice, sauce, marinades with or without wine, aspic (jelly) and other packing media and optional ingredients in accordance with the requirements of 2.2.2 and 2.2.3. The packing medium used shall be suitable for human consumption.

3.3 Optional Ingredients

- 3.3.1 Salt
- 3.3.2 Natural starches
- 3.3.3 Spices, herbs, vegetable seasonings, vinegar and wine; and, for decorative and flavouring purposes only, vegetables, fruits and other foods. The ingredients shall be suitable for human consumption and shall be free from abnormal taste, flavour or odour.

3.4 Processing

Head including gills shall be completely removed. Tails except for small fish shall be removed. Viscera (excluding kidneys, milt or roe), pectoral fins and scutes in the case of jack mackerel shall be removed to the extent possible. Damaged flesh associated with bruises and/or blood spots shall be cut away.

The eviscerated fish shall be well washed, and cleaned.

The fish may be cooked, fried or smoked and shall be well packed in accordance with the form of presentation desired. After sealing the containers shall be heat processed and cooled.

3.5 Final Product

3.5.1 Drained or Washed Drained Weight

The drained weight of fish (liquid pack), or the washed drained weight of fish (sauce packs) shall be not less than the following % (m/m) of water capacity of the can when packed in:

- edible oil 70%
- own juice; brine or water: marinade; aspic 60%
- sauces, also with other packing media added 50%

^{1/} Standards of potability shall not be lower than those contained in the latest edition of the "International Standards for Drinking Water", World Health Organization.

3.5.2 Appearance

3.5.2.1 The product in a can shall comprise fish of an appearance and colour characteristic of the genus processed and packed in the manner indicated (2.2.1).

3.5.2.2 The packing medium shall be of normal colour and consistency for the type.

3.5.2.3 The can shall be well filled with fish and packing media in accordance with the type of pack (see 3.5.1).

3.5.2.4 The final product shall be free from foreign matter.

3.5.3 Odour and Flavour

The product shall have an odour and flavour characteristic of the genus, process and type of packing medium, and be free from objectionable odours and flavours of any kind.

3.5.4 Texture

The texture shall not be crumbly, shall be reasonably free from mushiness and shall otherwise be characteristic of the species.

3.5.5 Bones

Bones, scutes, tails and pectoral fins present shall be soft.

3.5.6 Defects and Tolerances

The product shall comply with the definition and essential quality factors as set forth in this standard, subject to tolerance allowances as defined and set out in Annex A.

4. FOOD ADDITIVES

<u>Additive</u>	<u>Maximum level in the packing medium</u>
<u>Thickening or jellifying agents</u> (for use in packing medium only):	
- Sodium carboxymethylcellulose (CMC)	2.5 g/kg
- Pectins ^{1/}	2.5 g/kg
- Agar agar	} 20 g/kg
- Carrageenan	
- Guar gum	
- Carob bean gum	
- Tragacanth gum	
- Alginic acid as calcium, potassium, sodium salts	} 20 g/kg (total)
- Xanthan gum	
<u>Modified Starches (Chemically)</u>	
Acid-treated starches (incl. white and yellow dextrans)	Distarch phosphate
Alkali-treated starches	Distarch phosphate, acetylated
Bleached starches	Distarch phosphate, hydroxypropyl
Distarch adipate, acetylated	Distarch phosphate, phosphated
Distarch glycerol	Monostarch phosphate
Distarch glycerol, acetylated	Oxidized starch
Distarch glycerol, hydroxypropyl	Starch acetate
	Starch, hydroxypropyl
<u>Acidifying agents:</u>	
- Acetic acid	<u>Maximum level in the final product</u> Limited by Good Manufacturing Practices
- Citric acid	
- Lactic acid	

^{1/} Temporarily endorsed.

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<u>Additive</u>	<u>Maximum level in the final product</u>
Natural flavours, e.g. <u>1/</u>	
- Spice oils)	Limited by GMP
- Spice extracts)	
Smoke flavours (natural smoke solutions <u>1/</u> and their extracts)	Limited by GMP

5. HYGIENE AND HANDLING

5.1 It is recommended that the products covered by the provisions of this standard be prepared and handled in accordance with the following Codes:

- (i) the appropriate sections of the Recommended International Code of Practice - General Principles of Food Hygiene (CAC/RCP 1-1969)
- (ii) the Recommended Code of Practice for Canned Fish (CAC/RCP 10-1976)
- (iii) the Recommended Code of Practice for Smoked Fish (CAC/RCP 7)
- (iv) the Code of Hygienic Practice for Low Acid Canned Foods (ALINORM 78/13A, App. VI)

5.2 To the extent possible in good manufacturing practice the product shall be free from objectionable matter.

5.3 When tested by appropriate methods of sampling and examination, the product:

- a. shall be free from microorganisms capable of development under normal conditions of storage; and
- b. shall not contain any substances originating from microorganisms in amounts which may represent a hazard to health.

5.4 Products with an equilibrium pH above 4.6 shall have received a processing treatment sufficient to destroy all spores of Clostridium botulinum, unless growth of surviving spores is permanently prevented by product characteristics other than pH.

6. WEIGHTS AND MEASURES

The net weight of contents of canned mackerel and jack mackerel shall be determined in accordance with the method specified in sub-section 8.3.

The drained weight (liquid packs), or the washed drained weight (sauce packs) of the fish content shall be determined with the methods specified in subsection 8.4.

7. LABELLING

In addition to sections 1, 2, 4 and 6 of the Recommended International General Standard for the Labelling of Prepackaged Foods (CAC/RS 1-1969) the following specific provisions apply.

7.1 Name of the Food

7.1.1 The name of the product shall be:

- mackerel or jack mackerel in accordance with sub-section 2.1, whether qualified or not, used in accordance with the law and custom of the country in which the product is sold, and in a manner so as not to mislead the consumer;
- a local designation may be used provided it is not misleading to the consumer in the country in which the product is distributed.

7.1.2 The name of the packing medium used shall form part of the name of the food.

7.1.3 If the fish has been smoked or smoke flavoured, or fried, this information shall appear on the label in close proximity to the name.

7.1.4 Where in a product containing added oil the exuded water exceeds 8% in the case of oil packs or 12% in the case of packs in oil with own juice the product shall be declared as "X packed in oil with own juice" or "X processed in own juice with oil added" ("X" shall be the name of the food).

7.1.5 The term "natural juice" can be used as an alternative to "own juice" provided it does not mislead the consumer in the country in which the product is distributed.

7.1.6 If the product is produced in accordance with sub-section 2.2.3 the label shall contain in close proximity to the name of the food such additional words or phrases that will avoid misleading or confusing the consumer.

1/ Temporarily endorsed.

7.2 Presentation

Except where the product is in the form of dressed fish, the method of presentation specified in sub-section 2.2.1.2-2.2.1.9 shall be described on the label. The packing medium shall be declared as specified in 2.2.2.1-2.2.2.8.

7.3 List of Ingredients

A complete list of ingredients shall be declared on the label in descending order of proportion; sub-sections 3.2(b) and (c) of the Recommended International General Standard for the Labelling of Prepackaged Foods (CAC/RS 1-1969) are applicable.

7.4 Net Contents

The total net contents shall be declared by weight in either the metric system ("Système international" units) or avoirdupois or both systems of measurement as required by the country in which the product is sold.

7.5 Name and Address

The name and address of the manufacturer, packer, distributor, importer, exporter or vendor of the product shall be declared.

7.6 Country of Origin

The country of origin of the product shall be declared if its omission would mislead or deceive the consumer.

7.7 Lot Identification

Each container shall be embossed or otherwise permanently marked in code or in clear to identify the producing factory and the lot.

8. METHODS OF SAMPLING AND ANALYSIS

The methods of sampling and analysis described hereunder are international referee methods.

8.1 Sampling for Destructive Examination

Sampling of lots for examination of the product shall be in accordance with the FAO/WHO Codex Alimentarius Sampling Plans for Prepackaged Foods (AQL-6.5) (CAC/RM 42-1969).

8.2 Organoleptic Assessment

Organoleptic assessment of the product shall be made only by persons trained in such assessment.

8.3 Determination of Net Contents

Compliance with net contents declaration shall be determined by averaging the results from all containers of a sample representing a lot.

Procedure

- (1) Weigh the unopened container.
- (2) Open the container and remove the contents, wash the container and cover and dry with absorbent paper or cloth.
- (3) Weigh the empty container, including the top.
- (4) Subtract the mass of the empty container from the mass of the unopened container. The resultant figure shall be considered to be the net content.

8.4 Determination of Drained Weight and Washed Drained Weight of Mackerel or Jack Mackerel in relation to Water Capacity of the Container

Drained weight and washed drained weight shall be determined by averaging the results from all containers of a sample representing a lot, provided there is no unreasonable underweight in any individual container.

8.4.1 Specifications for Circular Sieve

- (i) If the quantity of the total contents of the container is less than 1.5 kg (3 lbs.) use a sieve with a diameter of 20 cm (8 in.).
- (ii) If the quantity of the total contents of the container is 1.5 kg (3 lbs.) or more, use a sieve with a diameter of 30 cm (12 in.).
- (iii) The meshes of sieves are made by so weaving wire as to form square openings of 2.5 mm by 2.5 mm or 2.8 mm by 2.8 mm.

8.4.2 Procedure for packs in own Juice, Brine, Water or Oil (drained weight)

- (i) Weigh the unopened containers that have been kept at a temperature of not less than 20°C (68°F) or more than 24°C (75°F) for a minimum of 12 hours prior to examination.
- (ii) After opening, tilt the containers so as to distribute the contents over the meshes of the tared (pre-weight) circular sieve. Incline the sieve at an angle of approximately 17° - 20° and allow the mackerel or jack mackerel to drain two minutes, measured from the time the product is poured into the sieve.
- (iii) Remove adhering liquids from bottom of the sieve by use of a paper towel. Weigh the sieve containing the drained mackerel or jack mackerel.

8.4.3 Procedure for packs in Sauces, also with optional ingredients (washed drained weight)

- (i) See 8.4.2 (i)
- (ii) After opening, tilt the container and wash first the covering sauce and then the full contents with hot tap water (approx. 40°C (104°F)), using a wash bottle (e.g. plastic) on the tared circular sieve.
- (iii) Wash the contents of the sieve with hot water until free of adhering sauce; where necessary separate optional ingredients (spices, vegetables, fruits) with pincers. Incline the sieve at an angle of approximately 17° - 20° and allow the mackerel or jack mackerel to drain two minutes, measured from the time the washing procedure has finished.
- (iv) Remove adhering water from the bottom of the sieve by use of a paper towel. Weigh the sieve containing the washed drained mackerel or jack mackerel.

8.4.4 Calculation and Expression of Drained or Washed Drained Weight of Mackerel or Jack Mackerel

The percentage m/m drained or washed drained mackerel or jack mackerel is given by the following equation:

$$\frac{m_2 - m_1}{m_w} \times 100$$

where m_1 = mass of the sieve

m_2 = mass of the sieve plus drained or washed drained product

m_w = water capacity of the container as determined in sub-section 8.4.5.

8.4.5 Determination of Water Capacity of Container

Procedure

- (1) Select a container which is undamaged in all respects.
- (2) Wash, dry and weigh the empty container after cutting out the lid without removing or altering the height of the double seam.
- (3) Fill the container with distilled water at 20° to 5 mm vertical distance below the top level of the container, and weigh the container thus filled.
- (4) Subtract the weight found in (2) from the weight found in (3). The difference shall be considered to be the weight of water required to fill the container.

9. CLASSIFICATION OF DEFECTIVES

A container which fails to meet the final product requirements specified in sub-section 3.5 shall be considered a "defective".

10. LOT ACCEPTANCE

A lot will be considered as meeting the final product and weight requirements of this standard when the total number of "defectives" as classified according to Annex A does not exceed the acceptance number (c) of the appropriate sampling plan in the Sampling Plans for Prepackaged Foods (AQL-6.5) (CAC/RM 42-1969), and when the average drained weight or average washed drained weight of all containers examined is not less than the appropriate value specified in 3.5.1 and when the average net contents of all containers examined is not less than the declared weight provided there is no unreasonable shortage in individual containers.

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ANNEX A

DEFECTS TABLE FOR CANNED MACKEREL AND JACK MACKEREL
Fillets, bits, and flakes in various packing media

<u>Definition of Defect</u>	<u>Classification</u>		
	<u>Serious</u>	<u>Major</u>	<u>Minor</u>
<u>Cutting and trimming</u>			
Parts of head or tail	-	-	1
Parts of viscera	-	2	-
Hard scutes (jack mackerel)	-	-	1
<u>Skin (fillets labelled skinless)</u>			
Each instance 3 to 10 cm ²	-	-	1
Over 10 cm ² for each additional 5 cm ²	-	-	1
<u>Black membrane</u>			
Each instance 5 to 10 cm ²	-	-	1
Over 10 cm ² for each additional 5 cm ²	-	-	1
<u>Non characteristic pieces (fillets and pieces only)</u>			
Flake or further disintegrated fish flesh clearly separated from fillets or pieces of fillets (expressed as % of drained fish solids material)			
Over 35%	6	-	-
Over 25% to 35%	4	-	-
Over 15% to 25%	-	2	-
Over 10% to 15%	-	-	1
<u>Discolouration, flesh</u>			
Severe	-	2	-
Slight or localized	-	-	1
<u>Discolouration, packing media</u>			
Severe (overall)	-	2	-
Slight	-	-	1
<u>Odour and flavour, flesh or packing media</u>			
Distinctly objectionable odour and flavour (e.g. metallic, rancid)	6	-	-
<u>Texture</u>			
Excessively mushy flesh	6	-	-
Excessively tough or fibrous or crumbly flesh	4	-	-
Hard bones (not easily friable using thumb and forefinger)	-	2	-
Honeycombing	6	-	-
<u>Exuded water (oil packs only)</u>			
Water content (expressed as % of declared net contents of can)			
(a) fish packed in oil			
> 8% (If above 8%, Section 7.1.4 applies)	4	-	-
6 - 8%	-	2	-
(b) fish packed in oil with own juice			
> 12%	4	-	-
10 - 12% (If above 8% Section 7.1.4 applies)	-	2	-
<u>Separation of sauces</u>			
Sauce separated into solid and liquid (except oil)			
severe (overall)	-	2	-
partly (objectionable appearance)	-	-	1
<u>Foreign material</u>	6	-	-
<u>Defective unit</u>			
A sample unit shall be considered a defective if it has:			
Points classified as	<u>Mackerel and Jack Mackerel</u>	<u>Other packs of Mackerel</u>	<u>and Jack Mackerel</u>
	<u>in oil</u>		
Serious	4	4	
Serious + Major	8	6	
Serious + Major + Minor	10	8	

DEFECTS TABLE FOR CANNED MACKEREL AND JACK MACKEREL
Dressed Fish and Cutlets in various packing media

<u>Definition of Defects</u>	<u>Classification</u>		
	<u>Serious</u>	<u>Major</u>	<u>Minor</u>
<u>Cutting, trimming and evisceration</u>			
Parts of tail (except for small fish) and/or head	-	-	1
Hard scutes (jack mackerel)	-	-	1
Excessive amount of viscera and/or feed (one or more fish not eviscerated)	4	-	-
Small amounts of viscera and/or feed (except for small fish and cutlets with belly uncut)	-	2	-
<u>Non characteristic pieces</u>			
Each additional small piece beyond 2	-	-	1
Flake or further disintegrated fish flesh, skin, bone or fin fragments (expressed as % of drained fish solids material)			
Over 10%	4	-	-
Over 7 % to 10%	-	2	-
<u>Discolouration, flesh</u>			
Severe	-	2	-
Slight or localized	-	-	1
<u>Discolouration, packing media</u>			
Severe (overall)	-	2	-
Slight	-	-	1
<u>Odour and flavour, flesh or packing media</u>			
Distinctly objectionable odour and flavour (e.g. metallic, rancid)	6	-	-
<u>Texture</u>			
Excessively mushy flesh	6	-	-
Excessively tough or fibrous or crumbly flesh	4	-	-
Hard bones (not easily friable using thumb and forefinger)	-	2	-
<u>Honeycombing</u>	6	-	-
<u>Exuded water (oil packs only)</u>			
Water content (expressed as % of net contents of can)			
(a) fish packed in oil			
> 8% (If above 8%, Section 7.1.4 applies)	4	-	-
6 - 8%	-	2	-
(b) fish packed in oil with own juice			
> 12%	4	-	-
10 - 12% (If above 8%, Section 7.1.4 applies)	-	2	-
<u>Separation of sauces</u>			
Sauce separated into solid and liquid (except oil)			
severe (overall)	-	2	-
partly (objectionable appearance)	-	-	1
<u>Foreign material</u>	6	-	-

Defective Unit

A sample unit shall be considered a defective if it has more points than specified below:

Points classified as	Jack mackerel in oil	Other packs of jack mackerel & mackerel in oil	Other packs of mackerel
Serious	4	4	4
Serious + major	10	8	6
Serious + major + minor	14	12	10

PROPOSED REVISION

RECOMMENDED INTERNATIONAL STANDARD FOR CANNED PACIFIC SALMON

(CAC/RS 3-1969, Rev. 1)

(Advanced to Step 5)

(Sidelined portions indicate revised text)

1. SCOPE

This standard applies to Canned Pacific Salmon in its own juice including salmon oil; it does not apply to speciality products where salmon constitutes only a portion of the edible contents.

2. DESCRIPTION

2.1 Product Definition

Canned Pacific Salmon is the product:

- prepared from the following species:
 - Oncorhynchus nerka
 - Oncorhynchus kisutch
 - Oncorhynchus tshawytscha
 - Oncorhynchus gorbuscha
 - Oncorhynchus keta
 - Oncorhynchus masou
- packed in hermetically sealed containers; and
- processed by heat so as to prevent spoilage and to soften bones.

2.2 Presentation

The product shall be presented in one of the following styles and forms of pack.

2.2.1 Style of Pack

2.2.1.1 Regular Style consists of canned salmon to which salt has been added.

2.2.1.2 No Added Salt consists of canned salmon to which no salt has been added.

2.2.2 Forms of Pack

2.2.2.1 Regular Pack - sections which are cut transversely from the fish and which are filled vertically into the can. The sections shall be packed so that the cut surfaces are approximately parallel with the ends of the container.

2.2.2.2 Skinless and Boned Salmon - regular pack canned salmon from which the skin and vertebrae have been substantially removed.

2.2.2.3 Minced Salmon - salmon which has been minced or ground.

2.2.2.4 Salmon Tips or Tidbits - small pieces of salmon.

2.2.3 Other Presentations

Any other presentation shall be permitted provided that it:

- (i) is sufficiently distinctive from other forms of presentation laid down in this standard;
- (ii) meets all the other requirements of this standard;
- (iii) is adequately described on the label to avoid confusing or misleading the consumer.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 Raw Material

The product shall be prepared from clean, wholesome and sound fish belonging to one of the species listed under sub-section 2.1. The raw material may be fresh or frozen and shall be of a quality suitable for human consumption.

3.2 Optional Ingredients

3.2.1 Salt - sodium chloride of quality suitable for human consumption.

3.2.2 Oil - edible salmon oil comparable in colour, viscosity and flavour to the oil which would naturally occur in the product.]

3.3 Processing

- The fish shall have heads (including gills), tails, fins, loose scales, viscera, including eggs, milt and blood removed; damaged or discoloured flesh associated with bruises or small wounds shall be cut away.

- The fish shall be well washed; the body cavity thoroughly cleaned to remove blood and viscera.

- The fish shall be well packed in accordance with the form of pack desired, in clean containers which are free from dents, rust or defective seams.

- The containers shall be sealed under vacuum and shall be heat processed and cooled.

3.4 Final Product

3.4.1 Appearance

(i) The can shall appear well filled with fish.

(ii) The product in a can shall comprise fish of an appearance and colour characteristic of the species processed and packed in the manner indicated in section 2.2.2.

(iii) The oil and liquid released during processing shall be normal and characteristic of the species packed.

(iv) The product shall be practically free from bruises, blood spots, honeycombing, abnormal colours or viscera and reasonably free from pieces of detached or loose skin and scales.

(v) In the case of regular packs, the sections of fish shall be arranged so that the cut surfaces are approximately parallel to the opened end and the skin side parallel to the walls of the can. Regular packs shall be reasonably free from cross packs and pieces or sections of vertebrae across the top of the can.

3.4.2 Odour and Flavour

The product shall have an odour and flavour characteristic of the species and be free from objectionable odours and flavours of any kind.

3.4.3 Texture

The fish shall have a texture characteristic of the species.

3.4.4 Bones

Bones when present shall be soft (see also 2.2.2.2).

3.4.5 Foreign Matter

The product shall be free from foreign material.

3.5 Defects and Tolerances

A can of fish which fails to meet any one of the requirements for odour and flavour, texture, bone and foreign matter as set out in sub-sections 3.4.2, 3.4.3, 3.4.4 and 3.4.5 or any three (3) requirements of sub-section 3.4.1 for appearance shall be considered a "defective".

4. HYGIENE

It is recommended that the products covered by the provisions of this standard be prepared and handled in accordance with the following Codes:

- (i) the appropriate sections of the Recommended International Code of Practice - General Principles of Food Hygiene (CAC/RCP 1-1969);
- (ii) the Recommended International Code of Practice for Canned Fish (CAC/RCP 10-1976);
- (iii) the Draft Code of Hygienic Practice for Low Acid Canned Foods (ALINORM 78/13A, App. VI).

4.1 To the extent possible in good manufacturing practice the product shall be free from objectionable matter.

4.2 When tested by appropriate methods of sampling and examination, the product:

- a. shall be free from micro-organisms capable of development under normal conditions of storage; and
- b. shall not contain any substances originating from micro-organisms in amounts which may represent a hazard to health.

4.3 Products with an equilibrium pH above 4.6 shall have received a processing treatment sufficient to destroy all spores of Clostridium botulinum.

5. LABELLING

In addition to Sections 1, 2, 4 and 6 of the Recommended International General Standard for the Labelling of Prepackaged Foods (Ref. No. CAC/RS 1-1969) the following specific provisions apply subject to endorsement by the Codex Committee on Food Labelling:

5.1 The Name of the Food

5.1.1 The name of the product as declared on the label shall be the designation appropriate to the species of the fish packed as shown below:

<u>Species</u>	<u>Designation</u>
Oncorhynchus nerka	Sokeye Salmon or Red Salmon
Oncorhynchus kisutch	Coho Salmon, Silver Salmon or Medium Red Salmon
Oncorhynchus tshawytscha	Spring Salmon, King Salmon or Chinook Salmon
Oncorhynchus gorbuscha	Pink Salmon
Oncorhynchus keta	Chum Salmon or Keta Salmon
Oncorhynchus masou	Cherry Salmon

5.1.2 Except for Regular Style and Regular Pack, the style and form of pack shall be declared in accordance with sub-sections 2.2.1 and 2.2.2.

5.1.3 If the product is produced in accordance with sub-section 2.2.3; the label shall contain in close proximity to the name of the product such additional words or phrases that will avoid misleading or confusing the consumer.

5.2 List of Ingredients

A complete list of ingredients shall be declared on the label in descending order of proportion; sub-sections 3.2(b) and (c)* of the Recommended International General Standard for the Labelling of Prepackaged Foods (CAC/RS 1-1969) are applicable.

5.3 Net Contents

The total net contents shall be declared by weight in either the metric system ("Système international" units) or avoirdupois or both systems of measurement as required by the country in which the product is sold.

* Note by the Secretariat: Reference to sub-section 3.2(c) does not seem necessary.

5.4 Name and Address

The name and address of the manufacturer, packer, distributor, importer, exporter or vendor of the product shall be declared.

5.5 Country of Origin

The country of origin of the product shall be declared if its omission would mislead or deceive the consumer.

5.6 Lot Identification

Each container shall be embossed or otherwise permanently marked in code or in clear to identify the **producing factory and the lot.**

6. METHODS OF SAMPLING AND ANALYSIS

The methods of sampling and analysis described hereunder are international referee methods.

6.1 Sampling for Destructive Examination

Sampling of lots for examination of the product shall be in accordance with the FAO/WHO Codex Alimentarius Plans for Prepackaged Foods (AQL-6.5) (CAC/RM 42-1969).

6.1.1 Organoleptic Assessment

Organoleptic assessment of the product shall be made only by persons trained in such assessment.

6.2 Determination of Net Contents

Net contents shall be determined by averaging the results from all containers of a sample representing a lot, provided there is no unreasonable shortage in any individual container.

Procedure

- (1) Weigh the unopened container.
- (2) Open the container and remove the contents, wash the container and cover and dry with absorbent paper or cloth.
- (3) Weigh the empty container, including the top.
- (4) Subtract the mass of the empty container from the mass of the unopened container. The resultant figure shall be considered to be the net content.

7. CLASSIFICATION OF DEFECTIVES

A container which fails to meet the end product requirements specified in sub-section 3.5 shall be considered a "defective".

8. LOT ACCEPTANCE

A lot will be considered as meeting the requirements for essential composition and quality factors and net contents of this standard when the total number of "defectives" does not exceed the acceptance number (c) of the appropriate sampling plan (AQL-6.5) in the FAO/WHO Codex Alimentarius Sampling Plans for Prepackaged Foods (CAC/RM 42-1969) and when the average net contents of all containers examined is not less than the declared net contents.

ANNEX A

DEFECTS TABLE FOR CANNED PACIFIC SALMON

(To be developed)

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PROPOSED DRAFT STANDARD FOR QUICK FROZEN FISH STICKS
(FISH FINGERS) AND FISH PORTIONS - BREADED OR IN BATTER
(returned to Step. 3)

1. SCOPE

This standard applies to quick frozen fish sticks (fish fingers) and fish portions formed from fish flesh with breaded or batter coatings, singly or in combination without further processing.

2. DESCRIPTION

2.1 Product Definition

2.1.1 A fish stick (fish finger) is the product including the coating weighing not less than 20 g (0.7 oz.) and not more than 50 g (1.8 oz.) shaped so that the length is not less than three times the greatest width. Each stick shall be not less than 10 mm thick.

2.1.2 A fish portion is the product including the coating which may be of any shape and size weighing not less than 50 g (1.8 oz.).

2.2 Minimum Requirements for Proportions of Fish Flesh Core

	<u>% of declared weight of final product</u>
(i) Raw breaded fish stick (finger)	60
(ii) Raw breaded fish portion	60
(iii) Partially cooked breaded fish stick (finger)	50
(iv) Partially cooked breaded fish portion	50
(v) Battered fish stick (finger) partially cooked	40
(vi) Battered fish portion partially cooked	40

2.3 Process Definition

Fish sticks (fish fingers) and fish portions consist of a fish core and a coating. The fish core may be cut from a heat-tempered, frozen fish block or it may be formed from unfrozen minced fish flesh, with or without additional ingredients. The fish core is prepared into uniformly shaped pieces, sometimes with additional processing, to achieve the desired final shape. Coatings are applied to the fish core in a variety of sequences, depending on the desired characteristics in the final product. These coatings may include pre-dusting (optional), batter and breading applied sequentially once (single line), or more than once (tandem line), or a batter fry line (last coating step is wet). When the last coating step is dry, the product may be partially cooked in a fryer before freezing or it may be frozen without heating ("raw breaded"). When the last coating step is wet, the product shall be partially cooked in a fryer or in an oven to "set" the coating on the product before freezing.

[Note: The paragraph above was written in response to a comment by the Japanese delegation for a more complete process definition.]

The product after any suitable preparation shall be subjected to a freezing process and shall comply with the conditions laid down hereafter. The freezing process shall be carried out in appropriate equipment in such a way that the range of temperature of maximum-crystallization is passed quickly. The quick freezing process shall not be regarded as complete until the product temperature has reached a level which will ensure that the temperature at the thermal center will not be higher than -18°C after thermal **stabilization**. The product shall be maintained under such conditions as will maintain the quality during transportation, storage and distribution up to and including the time of final sale.

The recognized practice of further processing of intermediate quick frozen **raw material under controlled conditions followed by the re-application of the quick freezing process** is permitted.

2.4 Presentation

- (i) Raw breaded fish stick (finger)
- (ii) Raw breaded fish portion
- (iii) Partially cooked breaded fish stick (finger)
- (iv) Partially cooked breaded fish portion
- (v) Battered partially cooked fish stick (finger)
- (vi) Battered partially cooked fish portion
- (vii) Other presentations

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

- (a) is sufficiently distinctive from other presentations laid down in this standard
- (b) meets all the other requirements of the standard
- (c) is adequately described on the label to avoid confusing or misleading the consumer.

The ingredients shall when appropriate be in agreement with the relevant Codex standard.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 Raw Material

3.1.1 Fish

Quick frozen breaded or battered fish sticks (fish fingers) and breaded or battered fish portions shall be prepared from fish fillets or minced fish flesh, or mixtures thereof, of edible species which are of a quality such as to be sold fresh for human consumption. The raw material may be in the form of **quick frozen blocks**.

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3.1.2 Coating

The coating used shall consist of materials fit for human consumption prepared from flours and/or related ingredients and/or starches and related ingredients and/or other ingredients.

3.1.3 Frying Fat (Oil)

A fat (oil) used in the cooking operation shall be a refined, deodorized food grade vegetable oil. 1/

[Note: The paragraph above was written to explain "excess fat" (paragraph 78 of Draft Alinorm 13th Session CX/FFP). The wording is taken from the proposed draft Code of Practice for Frozen Battered and/or Breaded Fishery Products, CX/FFP 79/8).]

3.2 Final Product

3.2.1 On opening, the pack shall be reasonable free from loose coating and shall comprise fish sticks (fish fingers) or fish portions which are:

(a) reasonably uniform in size (unless an indication of mixed sizes is given on the label);

(b) easily separated into individual units;

(c) free from foreign matter;

(d) free from excessive dehydration (freezer burn);

(e) reasonably free from broken or cracked or damaged units;

(f) reasonably free from **discolouration**.

(g) reasonably free from excess fat (oil).

3.2.2 The coating shall be reasonable complete and reasonably uniform in color.

3.2.3 The fish content of the product shall be:

(a) reasonably free from any parts of the internal organs;

(b) reasonably free from bones, fins or parts of fins;

(c) reasonably free from **discoloured** flesh, blood clots, black membrane, parasites, skin and scales.

[Note: The wording of section 3.2.3 should remain in harmony with the proposed draft standard for quick frozen fish blocks.]

3.2.4 The product shall be free from objectionable odour, flavour and texture. If the product is presented under a species name, the odour, flavour and texture and the colour of the flesh shall be characteristic of the species or mixture of species used.

3.2.5 The products in the various forms of presentation shall comply with the definitions and essential quality factors as set forth in this standard subject to tolerance allowances as set forth in Annex C.

1/ Note by the Secretariat: The Standard should refer here to Codex Standards for fats and oils.

4. FOOD ADDITIVES

4.1 In addition to the requirements given below, an additive contained in the fish component of a product and its maximum level shall also be in agreement with the requirements of section 4 of the Proposed Draft Standard for Quick Frozen Blocks of Fish Fillets and Minced Fish and Mixtures of Fillets and Minced Fish.

4.2 Additive

Maximum level in the
final product, including the
coating

Water binding agents:

- Sodium dihydrogen orthophosphate
(sodium phosphate, monobasic) and
potassium dihydrogen ortho-
phosphate (potassium phosphate
monobasic)) 3 g/kg of the final
product expressed as
- Diphosphate, tetrasodium or tetra-
potassium (Na or K pyrophosphate)) P₂O₅, singly or in
combination
- Triphosphate, pentasodium or penta-
potassium or calcium (Na, K or Ca)
tripolyphosphate)
- Polyphosphate, sodium (Na Hexa-
metaphosphate))

Leavening agents:

- Monocalcium phosphate, dicalcium
phosphate, sodium aluminum phosphate
sodium acid pyrophosphate-----Limited by G.M.P.

Antioxidants:

- TBHQ, BHA, BHT singly or in combination--.02% of total fat
content of dry batter
mix and/or breader
- Ascorbate, sodium salt-----1 g/kg of the final
product expressed as
ascorbic acid
- Ethyl and propyl gallate-----0.006 g/kg of the final
product

Flavour enhancers:

- Monosodium glutamate (MSG)-----Limited by G.M.P.

Natural Flavours:

- Spice and spice oils and extracts of
paprika, tumeric, cocoa (to be
elaborated)-----Limited by G.M.P.

Acidifying agents:

- Lactic acid or
- Citric acid or their Na and K salts-----1 g/kg of the final
product expressed as
lactic or citric acid
- Na iso-ascorbate (erythorbate)-----3 g/kg of the final
product

Permitted colourings:

- Annatto 75120, and Annato 75130
- B carotene/carotenes generally
- Azogeranine or Red 2G 18050

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- Caramel
- Yellow #5 (Tarrazine), and yellow #6 (sunset yellow)
- Red #40
- Ponceau 4R 16255
- Guar gum, carob bean gum, carageenan, xanthan, pectins-----10 g/kg of the final product singly or in combination
- Sodium alginate-----12.5 g/kg of the final product
- Methyl cellulose, propyl cellulose, methylethyl cellulose, carboxymethyl cellulose-----5.0 g/kg of the final product
- Emulsifying salt:
 - Glyceryl monosterate or lactylate
 - Sodium steroyl 2 - lactylate or
 - Lecithin, mono and diglycerides-----5.0 g/kg of the final product
- Chemically Modified starches-----Limited by G.M.P.
 - Acid-treated starches (incl. white and yellow dextrans)
 - Alkali-treated starches
 - Bleached starches
 - Distarch adipate, acetylated
 - Distarch glycerol
 - Distarch glycerol, acetylated
 - Distarch glycerol, hydroxypropyl
 - Distarch phosphate
 - Distarch phosphate, acetylated
 - Distarch phosphate, hydroxylpropyl
 - Distarch phosphate, phosphated
 - Monostarch phosphate
 - Oxidized starch
 - Starch acetate
 - Starch, hydroxypropyl
 - Acetylated distarchphosphate

5. HYGIENE AND HANDLING

5.1 It is recommended that the product covered by the provisions of this standard be prepared and handled in accordance with the following codes:

(i) the appropriate sections of the Recommended International Code of Practice - General Principles of Food Hygiene (CAC/RCP 1-1969)

(ii) the (Recommended) Code of Practice for Frozen Fish (CAC/RCP 16-1978)

5.2. To the extent possible in good manufacturing practice, the product shall be free from objectionable matter.

- 5.3 When tested by appropriate methods of sampling and examination, the product:
- a. shall be free from microorganisms in amounts which may represent a hazard to health;
 - b. shall be free from parasites which may represent a hazard to health, and
 - c. shall not contain any substances originating from microorganisms in amounts which may represent a hazard to health.

6. LABELLING

In addition to sections 1, 2, 4 and 6 of the Recommended International General Standard for the Labelling of Prepackaged Foods (CAC/RS 1-1969) the following provisions apply, subject to endorsement by the Codex Committee on Food Labelling.

6.1. Name of the Food

6.1.1 The name of the food shall be "breaded fish sticks" (fish fingers), "breaded fish portions", "battered fish sticks" (fish fingers) or "battered fish portions" as appropriate or other specific name used in accordance with the law and custom of the country in which the food is sold and in a manner so as not to mislead the consumer.

6.1.2 The label [may], in addition, include reference to the species or mixture of species.

6.1.3 In addition there shall appear on the label either the term "quick frozen" or the term "frozen" whichever is customarily used in the country in which the food is sold, to describe a product subjected to the freezing processes as defined in sub-section 2.3.

6.1.4 Where the pack contains products which are not reasonably uniform in size, this shall be shown clearly on the label.

[6.1.5 The label [may] show whether the products are prepared from minced fish flesh, whole fish fillets or a mixture of both.]

[6.1.6 Products prepared from raw material from which the pin bones are not removed shall be labelled accordingly in close proximity to the name of the food.]

6.2 List of Ingredients

A complete list of ingredients, using generic terms where appropriate, shall be declared on the label in descending order of proportion. The provisions of sub-section 3.2(b) and 3.2(c) of the Recommended International General Standard for the Labelling of Prepackaged Foods (CAC/RS 1-1969), shall also apply.

APPENDIX IV6.3 Net Contents

The net content shall be declared by weight in either the metric system ("Système international" units) or avoirdupois or both systems of measurement as required by the country in which the food is sold.

6.4 Name and Address

The name and address of the manufacturer, packer, distributor, importer, exporter or vendor of the food shall be declared.

6.5 Country of Origin

The country of origin of the product shall be declared if its omission would mislead or deceive the consumer.

6.6 Lot Identification

Each container shall be permanently marked in code or in clear to identify the producing factory and the lot.

7. METHODS OF SAMPLING AND ANALYSIS

The methods of sampling and analysis described hereunder are international referee methods which are to be endorsed by the Codex Committee on Methods of Analysis and Sampling.

7.1 Sampling for Destructive Examination

Sampling of lots for examination of the product shall be in accordance with the FAO/WHO Codex Alimentarius Sampling Plans for Prepackaged Foods (AQL-6.5) (CAC/RM 42-1969).

7.2 Organoleptic Examination

Organoleptic assessment of the product shall be made only by persons trained in such assessment. The frozen sample shall be cooked prior to organoleptic assessment according to the cooking instructions on the package. Where no such instructions are given, the frozen sample shall be cooked according to a method set out in Annex A.

7.3 Determination of Net Contents

The net weight (exclusive of packaging material) of each sample representing a lot shall be determined in the frozen state. Compliance with net contents declaration shall be determined by averaging the results from all containers of a sample representing a lot.

8. CLASSIFICATION OF DEFECTIVES

8.1 A sample unit of product which fails to meet the requirements of Section 3.2 shall be considered "defective".

9. LOT ACCEPTANCE

A lot will be considered as meeting the final product and weight requirements of this standard when the total number of "defectives" as classified according to Annex C does not exceed the acceptance number (c) of the appropriate sampling plan in the Sampling Plans for Prepackaged Foods (AQL-6.5) (CAC/RM 42-1969) and when the average net contents of all containers examined is not less than the declared weight provided there is no unreasonable shortage in individual containers.

ANNEX "A"
METHODS OF COOKING QUICK FROZEN FISH STICKS (FISH FINGERS)
AND FISH PORTIONS - BREADED OR IN BATTER

The frozen sample shall be cooked prior to organoleptic assessment according to the cooking instructions on the package. When such instructions are not given, or equipment to cook the sample according to the instructions is not obtainable, the frozen sample shall be cooked according to the applicable method(s) given below:

The following procedures are based on procedure 18.B01 of the Association of Official Analytical Chemists. It is based on heating product to an internal temperature $\geq 70^{\circ}\text{C}$ (160°F). Cooking times vary according to size of product and equipment used. If determining cooking time, cook extra sample, using temperature measuring device to determine internal temperature.

In the procedures given below, conversions between metric units and $^{\circ}\text{F}$, inches or ounces have been rounded for ease of measurement. Slight variations in these units are acceptable as long as the product is heated to an internal temperature $\geq 70^{\circ}\text{C}$ (160°F).

PARTIALLY COOKED FISH STICKS (FISH FINGERS) OR FISH PORTIONS
(of any size or shape)

Bake Procedure

Distribute product evenly on a flat cookie sheet or shallow flat pan. Heat in ventilated oven, preheated to 200°C (400°F) until internal temperature of product reaches 70°C (160°F).

RAW BREADED FISH STICKS (FISH FINGERS) (Weight of each stick (finger) as defined in section 2.1.1.)

Shallow frying

Place 60g. (2 oz.) of liquid or **hydrogenated** cooking oil to a depth of 3 mm ($1/8$ ") into a 20 cm (8") diameter frying pan. The oil should be hot before adding the product. Cook for 8 minutes turning the product once.

Deep Fat Frying

Use a 25 cm (9") aluminum deep fat fryer with 5 cm ($1\ 7/8$ ") of oil (approximately 2 l. or $3\ 1/4$ pints). Pre-heat the oil to 180°C (360°F) and cook the product for 4 minutes.

Grilling

Pre-heat the grill on full heat, then adjust to medium heat.

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Space the product evenly on base of grill pan. Cook the product for 10 minutes turning once during the cooking time and adjusting the heat if necessary.

RAW BREADED FISH PORTIONS (Weight of each portion not less than 50 g (1.8 oz.) and not more than 70 g (2.5 oz.).

Shallow Frying

Place 115 g. (4 oz.) of liquid or hydrogenated cooking oil into a 20 cm (8") diameter frying pan to give approximately 6 mm. (1/4") depth. With medium heat of 175°C (350°F), cook the product for 10 minutes turning once.

Deep Fat Frying

Use a 25 cm (9") aluminum deep fat fryer with 5 cm (1 7/8") of oil (approximately 2 l. or 3 1/4 pints). Pre-heat the fat to 175°C (350°F) and cook the product for 5 minutes.

ANNEX "B"

DEFINITION OF DEFECTS IN QUICK FROZEN FISH STICKS
(FISH FINGERS) AND FISH PORTIONS - BREADED OR IN BATTER

Presence of Surplus Loose Coating

An excessive amount of loose breading material in a package.

Excess Fat (Oil)

Perceptible amounts of oil which has stained the inside of and soaked through the package.

Ease of Separation

Upon removal from the container in the frozen state, units should separate easily by slight force exerted by hand without damage and without packaging material stuck to the surfaces. Coating which is damaged or product units which break as a result of separation by slight hand pressure are considered defective.

Size Uniformity

Size uniformity may be caused by improper or non-uniform cutting of a fish block.

For fish sticks (fish fingers), size uniformity is the difference in the combined length and width between the largest and the smallest stick (finger) in a sample unit.

For fish portions, size uniformity is the difference in surface area between the largest and the smallest portion in a sample unit.

Broken

Broken product has been separated into two or more pieces.

Cracked

A crack is a break in the coating greater than 10mm which extends into the flesh.

Damaged (other than broken or cracked)

Damaged product has been squashed, mashed or otherwise mutilated to the extent that appearance is materially affected.

Discolouration of Coating

Colour of individual fish sticks (fish fingers) or fish portions whose appearance is significantly different from that of the majority.

Coating Defects (not as a result of ease of separation)

- (i) Raw Breaded or partially cooked units - an individual unit which has more than 15% of the surface area devoid of coating.
- (ii) Battered Units - an individual unit which has more than 2 square cm of surface area devoid of coating.

Odour and Flavour - (cooked state)

Any flavour or odour which is distinctly objectionable, e.g., rancid or tainted.

Texture - (cooked state)

Any texture of the fish flesh (fish core) which is distinctly objectionable e.g., spongy, or rubbery, or mushy, or gelatinous, or gritty or tough.

Foreign Matter

Foreign matter is any material, other than packaging material, not derived from fish or coating.

Discoloured Flesh - (cooked state)

Fish flesh colour not natural to the species of fish used, but does not include blood clots, black membrane, skin or scales which are assessed separately.

Bones

Any bone whose maximum profile can be fitted within a rectangle measuring $\sqrt{10} \times \sqrt{3}$ mm is not regarded as a bone for the purpose of being classified as a defect.

Any bone whose maximum profile lies outside a rectangle measuring $\sqrt{40} \times \sqrt{10}$ mm is regarded as a "critical bone."

Any bone whose maximum profile cannot be fitted within a rectangle measuring $\sqrt{10} \times \sqrt{3}$ mm, but which can be fitted into a rectangle measuring $\sqrt{40} \times \sqrt{10}$ mm is rated as a bone defect.

Blood Clots

A blood clot greater than 5mm in any dimension.

Black Membrane (belly wall)

A piece of black membrane (belly wall) greater than 1.5mm in any dimension.

Parasites

Each parasite with a capsular diameter greater than 3mm or a parasite not encapsulated and greater than 1 cm in length, or a parasitic infestation which is objectionable by virtue of its color or any other characteristic.

Skin (does not apply to skin-on forms of presentation)

A piece of skin greater than 1 square centimeter.

Scales

Each aggregate of scale(s) having an area greater than 1 square cm.

Viscera

Any portion of the internal organs.

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ANNEX "C"

DEFECTS TABLE FOR QUICK FROZEN BREADED FISH FINGERS
(FISH STICKS) AND BREADED FISH PORTIONS

SAMPLE UNIT

If the weight of each fish stick (fish finger) or fish portion is:	A sample unit consists of this number of fish sticks (fish fingers) or portions
--	---

Less than 50 g (1.8 oz.)	10
Over 50 g (1.8 oz.)	5

Consult the sampling plan for prepackaged foods to determine the sample size.

- (i) For packages containing less than 10 fish sticks (50 gm each or less), take multiple packs adequate to yield 10 sticks.
- (ii) For packages containing less than 5 fish portions (50 gm each or greater), take multiple packs **adequate to** yield 5 portions.

Defect	Unit of Measurement 10 - sticks) or appropriate 5 - portions) multiples of packs	Defect Categories		
		Serious	Major	Minor
A. FINAL PACK --				
Frozen State				
1. <u>Presence of surplus loose coating</u>	Over 0.75% of declared quantity of content -- each container	-	-	2
2. <u>Excessive fat oil</u>	Each container affected with staining or oil soaked through container	-	-	1
3. <u>Ease of separation</u>	More than 40% on the sticks (fingers) or portions in a container cannot be separated by hand.	6	-	-
	20-40% of the fingers (sticks) or portions hand-separated with difficulty	4	-	-

Defect	Unit of Measurement 10 - sticks) or appropriate 5 - portions) multiples of packs	Defect Categories		
		Serious	Major	Minor
4. Size Uniformity				
(a) Fish fingers (sticks) - the difference in the combined length and width between the largest and smallest stick (finger)	Over 20mm	-	-	2
	Over 10mm and up to 20mm	-	-	1
(b) Fish portions - the difference in surface area between the largest and the smallest portion	Over 20% of the difference in surface area.	-	-	2
	10-20% of the difference in surface area.	-	-	1
5. Broken				
- separated into two or more pieces	Over 20% of sticks (fingers) or over 40% portions	6	-	-
- squashed or mashed	20-40% (portions) or 10-20% (sticks) (fingers)	4	-	-
6. Cracked				
- a break greater than 10mm which extends into the flesh	Over 20% of sticks (fingers) or 40% or portions	-	2	-
7. Damaged				
- misshapen or otherwise damaged or mutilated	10-20% (sticks) 20-40% (portions)	-	-	2
8. Discolouration (coating)				
- black or very dark brown	One or more sticks (fingers) or portions in the pack affected	6	-	-
- colour of some sticks (fingers) or portions significantly different from that of the others	Over 20% of the sticks (fingers) or 40% portions in the pack discoloured	-	-	2
9. Coating Defects				
(a) Fish sticks breaded or partially cooked	Over 20% of sticks affected [6] 10-20% affected [4]	-	-	-
(b) Fish sticks battered	More than 2 cm ² of the surface area of each stick	-	[2]	-
(c) Fish portions breaded or partially cooked	Over 40% of portions affected [6] 20-40% affected [4]	-	-	-
(d) Fish portions battered	More than 2 cm ² of the surface area of each portion	-	[4]	-

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Fish Content		Serious	Major	Minor
B -- Cooked State (Combined 10 sticks or 5 portions -- coating removed)				
1.	<u>Odour/flavour</u> Any stick/portion distinctly objectionable	6	-	-
2.	<u>Texture</u> Any stick/portion definitely spongy, rubbery, mushy, tough	6	-	-
	Any stick/portion moderately spongy, rubbery, tough, mushy	4	-	-
3.	<u>Bones</u> 10mm x 3 mm but less than 40mm x 10mm	-	[4]	-
	Critical bone 40mm x 10mm in any other dimension	6	-	-
4.	<u>Discoloured flesh</u> (flesh not of a colour natural to the species) Discolouration of more than 20% sticks 40% portions of the fish	10-20% (sticks)	6	-
		20-40% (portions)	4	-
5.	<u>Blood clots</u> - greater than 5mm in any dimension - each instance	-	2	-
6.	<u>Black membrane</u> (belly wall) - greater than 1.5mm in any dimension - each instance	-	2	-
7.	<u>Parasites</u> Each parasite with a capsular diameter greater than 3mm or a parasite not encapsulated and greater than 1 cm in length, or a parasite which is objectionable by virtue of its color or any other characteristic - each instance	4	-	-
8.	<u>Skin</u> pieces greater than 1 cm ² - each instance	-	2	-

Fish Content				
B -- Cooked State (Combined 10 sticks or 5 portions -- coating removed)				
		Serious	Major	Minor
9.	<u>Scales</u>			
-	aggregate areas of more than 1 cm ² - each instance	-	2	-
10.	<u>Foreign matter</u>			
	(any material other than packaging material not derived from fish or coating, or not permitted by the standard)	6	-	-
	packaging material - each instance	-	4	-
11.	<u>Viscera</u>			
	(any portion of the internal organs) - each instance	-	2	-

N.B. When two or more defects appear on a single stick or portion the most serious only shall apply.

DEFECTIVE UNIT

A pack shall be considered a defective if it has:

- (a) more than 4 points for defects classified as serious; or
- (b) more than 12 points for defects classified as major; or
- (c) more than 14 points for defects in the combined classifications (including minor); or
- (d) more than 12 points for defects classified as serious + major; or
- (e) more than 12 points for defects classified as serious + minor; or
- (f) more than 14 points for defects classified as minor; or
- (g) more than 14 points for defects classified as major + minor.

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PROPOSED DRAFT STANDARD FOR QUICK FROZEN BLOCKS
OF FISH FILLETS AND MINCED (SEPARATED) FISH FLESH
AND MIXTURES OF FILLETS AND MINCED FISH
(returned to Step 3)

1. SCOPE

This standard shall apply to quick frozen blocks of cohering fish flesh, prepared from fillets or minced flesh or a mixture of fillets and minced fish which are intended for further processing.

2. DESCRIPTION

2.1 Product Definition

- (a) Quick frozen blocks are rectangular or other uniformly shaped masses of cohering fish fillets and pieces of such fillets or minced fish or a mixture of fillets and minced fish flesh prepared from:
- (i) a single species, or
 - (ii) a mixture of species.
- (b) Fillets used in the manufacture of blocks shall be slices of irregular size and shape removed from the carcass by cuts made parallel to the backbone.
- (c) Minced fish flesh used in the manufacture of blocks shall be particles of skeletal muscle which have been separated from and are essentially free from bones and skin.

2.2 Process Definition

The product shall be subjected to a freezing process and shall comply with the conditions laid down hereafter. The freezing process shall be carried out in appropriate equipment in such a way that the range of temperature of maximum crystallization is passed quickly. The quick freezing process shall not be regarded as complete unless and until the product temperature has reached -18°C (0°F) at the thermal centre after thermal stabilization. The product shall be maintained at a low temperature such as will maintain the quality during transportation, storage and distribution up to and including the time of final sale. The recognized practice of repacking quick frozen products under controlled conditions followed by the re-application of the quick freezing process as defined is permitted.

2.3 Presentation

The product shall be presented in fish blocks comprising:

- (1) Fillets and fillet pieces:
 - (i) Skin-on
 - (ii) Skinless including deep-skinned fillets.
 - (iii) Skinless and boneless.
- (2) Fillets/fillet pieces and minced fish.
- (3) Minced fish.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 Raw Material

Quick frozen blocks shall be prepared from well drained fillets and pieces of such fillets or minced flesh of sound fish which are of a quality fit to be sold fresh for human consumption.

3.2 Optional Ingredients

Sodium chloride may be present at a level not exceeding 1.0% m/m.

3.3 Final Product

3.3.1 The blocks shall be reasonably regular in shape and have a reasonably uniform colour characteristic of the species or mixture of species and be free from foreign matter; and, shall be reasonably free from viscera, fins or parts of fins, significantly discoloured flesh, bruises, blood clots, membrane (belly wall), parasites, bones, scales and where appropriate skin (see Annexes B, C and D).

3.3.2 The blocks shall be free from a deep dehydration condition which masks the normal colour, cannot be easily removed by scraping, and covers more than 5% of the surface area of a block.

3.3.3 After cooking by steaming, baking or boiling as set out in Annex A, the product:

- (a) shall have a flavour and odour characteristic of the species or mixture of species and be free from any objectionable flavour and odour, and
- (b) shall have a texture characteristic of the species or mixture of species packed and shall not be spongy or rubbery or mushy or gelatinous or tough or gritty (see Annexes B, C and D).

4. FOOD ADDITIVES

4.1 Water-binding agents (drip-loss prevention)

Maximum level in the final product

4.1.1 Monophosphate, monosodium, or monopotassium (Na or K orthophosphate)

4.1.2 Diphosphate, tetrasodium or tetrapotassium (Na or K pyrophosphate)

4.1.3 Triphosphate, pentasodium or pentapotassium or calcium (Na, K or Ca tripolyphosphate)

4.1.4 Polyphosphate, sodium (Na hexametaphosphate)

5 g/kg expressed as P₂O₅, singly or in combination

4.2 Antioxidant

4.2.1 Ascorbate, sodium or potassium salts

1 g/kg expressed as ascorbic acid

4.3 In addition, for Minced Fish only:

4.3.1 Sodium alginate

4.3.2 Ethyl and propyl gallate

4.3.3 Citric acid and Na or K salts

4.3.4 Na Iso-ascorbate (erythorbate)

5 g/kg
0.01 g/kg
1 g/kg
3 g/kg

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5. HYGIENE AND HANDLING

5.1 It is recommended that the products covered by the provisions of this standard be prepared and handled in accordance with the Recommended International Code of Practice - General Principles of Food Hygiene (CAC/RCP 1-1969) and the Recommended Code of Practice for Frozen Fish (CAC/RCP 16-1978).

5.2 To the extent possible in good manufacturing practice, the product shall be free from objectionable matter.

5.3 When tested by appropriate methods of sampling and examination, the product:

- a. shall be free from micro-organisms in amounts which may represent a hazard to health;
- b. shall be free from parasites which may represent a hazard to health; and
- c. shall not contain any substances originating from micro-organisms in amounts which may represent a hazard to health.

6. LABELLING

In addition to Sections 1, 2, 4 and 6 of the Recommended International General Standard for the Labelling of Prepackaged Foods (CAC/RS 1-1969) the following specific provisions apply subject to endorsement by the Codex Committee on Food Labelling.

6.1 Name of the Food

6.1.1 The name of the food shall be declared as "x y blocks" in accordance with the law, custom or practice in which the product is distributed, "y" shall represent the common name of the species or species packed and "x" shall represent the form of presentation of the block (filleted, minced, filleted plus minced). Where more than one species is used in a block the names of the species may, as an alternative, appear in close proximity to the name of the food.

6.1.2 Blocks prepared from skinless and/or boneless fillets may be designated as such.

6.1.3 Blocks prepared from "skin-on" fillets shall be designated on the master carton as "skin-on" and may be designated as boneless when boning is completed.

6.1.4 In addition, the labelling on the master carton shall show the term "frozen", or "quick frozen" whichever is customarily used in the country in which the product is distributed, to describe a product subjected to the freezing process described in Section 2.2.

6.1.5 The label shall show the relative proportions of minced or filleted fish incorporated in the block.

6.2 List of Ingredients

6.2.1 A complete list of ingredients shall be declared on the master carton in descending order of proportion. The provisions of sub-sections 3.2(b) and 3.2(c) of the Recommended International General Standard for the Labelling of Prepackaged Foods (CAC/RS 1-1969) shall also apply.

6.3 Net Contents

6.3.1 The net contents shall be declared by weight on the master carton in either the metric system ("Système international" units) or avoirdupois or both systems as required by the country in which the food is distributed.

6.3.2 Where products have been glazed the declaration of the net contents of the product shall be exclusive of the glaze.

6.4 Name and Address

The name and address of the manufacturer, packer, distributor, importer, exporter or vendor of the food shall be declared on the master carton.

6.5 Country of Origin

6.5.1 The country of origin shall be declared if its omission would mislead or deceive the consumer.

6.5.2 When a food undergoes processing in a second country which changes its nature, the country in which the processing is performed shall be considered to be the country of origin for the purposes of labelling.

6.6 Lot Identification

Each master carton shall be permanently marked in code or in clear to identify the producing factory and the lot.

6.7 Storage Instructions

The outer containers shall bear clear directions for storage.

7. METHODS OF SAMPLING, EXAMINATION AND ANALYSIS

The methods of sampling, examination and analysis described hereunder are international referee methods.

7.1 Sampling

Sampling of lots for examination of the product shall be in accordance with the FAO/WHO Codex Alimentarius Sampling Plans for Prepackaged Foods (AQL-6.5) (CAC/RM 42-1969).

7.2 Organoleptic and Physical Examination

Samples taken for organoleptic and physical examination shall be assessed by persons trained in such examinations.

7.2.1 Weight

The net weight (exclusive of packing material or protective coating) of each sample block shall be determined in the frozen state.

7.2.2 Determination of Net Contents of Products Covered by Glaze

As soon as a package is removed from low temperature storage open immediately and place the contents under a gentle spray of cold water. Agitate carefully so that the product is not broken. Spray until all ice glaze that can be seen or felt is removed. Remove adhering water by the use of a paper towel and weigh the product in a tared pan.

Note: Storage of the product may cause or contribute to a low net weight (whether or not the product has been glazed).

7.2.3 Dehydration (freezerburn) - Each sample block shall be examined for compliance with Section 3.3.2.

7.2.4 Physical defects (thawed state) - A sample unit weighing 1 kg (or 2 lbs) shall be removed from each sample block. For minced blocks, the sample unit shall be removed by taking at least four core samples from different locations of the block to make up the 1 kg sample. The sample unit shall be thawed by enclosing it in a film-type bag and immersing in an agitating water bath held at maximum of 21°C (70°F). The complete thawing of the product is determined by gently squeezing the bag until no hardcore or ice crystals are felt, taking care not to damage the texture of the fish. The thawed sample unit should be examined for compliance with Section 3.3.2 (see Annexes B, C and D). Minced flesh shall be spread evenly on a level tray to a depth of 1 cm and the visible defects counted on the surface without disturbing the individual pieces of flesh.

7.2.5 Sensory evaluation - Examination for odour, flavour and texture shall be made on a cooked sub-sample of at least 100 g (or 4 oz.) from each sample block; the sub-sample shall be cooked by a method set out in Annex A.

7.2.6 The proportion of minced flesh in blocks prepared from mixtures of fillets and minced flesh shall be determined by thawing the whole block (as in 7.2.4), separating the fillets from the mince and weighing each separately.

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8. CLASSIFICATION OF DEFECTIVES

A block which fails to meet the requirements of Section 3.3.1 or 3.3.2 or 3.3.3 shall be considered "defective".

9. LOT ACCEPTANCE FOR QUALITY

A lot will be considered as meeting the Final Product requirements of this standard when the total number of "defectives" in a sample does not exceed the acceptance number specified in the sampling plan.

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ANNEX "A"

COOKING METHODS

Following procedures are based on heating product to internal temperature $\geq 70^{\circ}\text{C}$ (160°F). Cooking times vary according to size of product and equipment used. If determining cooking time, cook extra sample using temperature measuring device to determine internal temperature.

Cut 3 portions, each about 10 x 7.5 x 1.2 cm (4 x 3 x 0.5 in.) from sample.

- (a) Baking procedure - Wrap product in aluminium foil and distribute evenly on flat cookie sheet or shallow flat pan. Heat in ventilated oven, preheated to 204°C (400°F), until internal temperature of product reaches $\geq 70^{\circ}\text{C}$ (160°F).
- (b) Steaming procedure - Wrap product in aluminium foil and place on wire rack suspended over boiling H_2O in covered container. Heat until internal temperature of product reaches $\geq 70^{\circ}\text{C}$ (160°F).
- (c) Boiling in bag - Place the product into a boilable film-type pouch and seal. Immerse the pouch and its contents into boiling water and cook until the internal temperature of the product reaches $\geq 70^{\circ}\text{C}$ (160°F).

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ANNEX "B"

DEFINITION OF DEFECTS IN QUICK FROZEN BLOCKS OF FISH FILLETS AND
MINCED FISH FLESH

Dehydration (Freezerburn)

(A) Deep dehydration

An excessive loss of moisture from the surface of the block which shows clearly on the surface of the product, penetrates below the surface and cannot be easily removed by scraping.

(B) Moderate dehydration

A loss of moisture from the surface of the block which is colour masking, but does not penetrate the surface and can be easily removed by scraping.

Block Irregularity

Ice pockets, ragged edges, damage, poor angles or non-uniformity of shape which would result in product loss after cutting is estimated by determining the number of 25 g (1 oz.) units which could be adversely affected. For the purpose of estimating product loss, the 25 g (1 oz.) unit shall have the dimensions 10 x 2.5 x 1.6 cm (4 x 1 x $\frac{5}{8}$ in.).

Bones

Any bones exceeding the sizes specified in Annex "C" and Annex "D".

Any bone whose maximum profile can be fitted within a rectangle measuring $\sqrt{10 \times 3}$ mm is not regarded as a bone for the purpose of being classified as a defect.

Any bone whose maximum profile lies outside a rectangle measuring $\sqrt{40 \times 10}$ mm is regarded as a "critical bone".

Any bone whose maximum profile cannot be fitted within a rectangle measuring $\sqrt{10 \times 3}$ mm, but which can be fitted into a rectangle measuring $\sqrt{40 \times 10}$ mm is rated as a bone defect.

Blood Clots and Discolouration

A. Fillet Blocks

(i) Any lump or mass of clotted blood greater than 5 mm in any dimension.

(ii) Any significant discolouration, including bruises, browning, yellowing and melanin sooting which is greater than 3 cm² up to and including 10 cm² and each additional complete 5 cm² thereafter.

B. Minced Blocks

Any readily noticeable lump or mass of clotted blood or any readily noticeable discoloured area not characteristic of the species used.

Fins or Part Fins

A. Fillet Blocks

Any fin or part fin (two or more rays connected by membrane).

B. Minced Blocks

Not applicable - shows as bone and/or membrane.

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Skin, Membrane (Belly Lining), Scales and Spinal Cord

A. Fillet Blocks

- (i) In the case of skinless fillet blocks each piece of skin greater than 3 cm^2 up to and including 10 cm^2 and every additional complete 5 cm^2 thereafter.
- (ii) In the case of skin-on or skinless fillet blocks each piece of block membrane (belly lining) greater than 5 cm^2 up to and including 10 cm^2 and every additional complete 5 cm^2 thereafter.

B. Minced Blocks

Any readily noticeable piece of skin, membrane (black or white) scale or spinal cord.

Parasites

Each parasite with a capsular diameter greater than 3 mm or a parasite not encapsulated and greater than 1 cm in length, or other parasitic infestation which is easily recognized on inspection, e.g. by virtue of its dark colour.

Scales

A. Skin-on Fillets

- (i) Each area of scales over 3 cm^2 up to and including 10 cm^2 and every additional complete 5 cm^2 thereafter.

- (ii) Each complete unit of 5 loose scales.

B. Skinless fillets

Each complete unit of 5 loose scales.

Odour and Flavour

Any flavour or odour which after cooking is distinctly objectionable e.g. rancid or tainted.

Texture

Any texture which after cooking is distinctly objectionable e.g. spongy, or rubbery, or mushy, or gelatinous, or gritty or tough.

Viscera

Any portion of the internal organs.

Foreign Matter

Any material not derived from fish or not permitted by the Standard.

Proportion of Minced Fish

The declared percentage of minced fish in a block, as required in paragraph 6.1.6 and as determined in paragraph 7.2.5 shall be accurate to within $\left[\quad \right] \%$ of the net fish content.

ANNEX "C"

PROPOSED DRAFT DEFECT TABLE FOR FROZEN BLOCKS OF FISH FILLETS
/AND MIXTURES OF FILLETS AND MINCED FISH FLESH/

Defect Description	Classification		
	Serious	Major	Minor
FROZEN STATE (Sample Block)			
1. <u>Dehydration</u>			
(a) Deep			
(i) > 5% of area	6	-	-
(ii) < 5% of area	-	4	-
(b) Moderate, > 5% of area	-	-	1
2. <u>Block Irregularity</u>			
(a) 2-5% loss - by weight or <u>minimum number of units affected</u>	-	-	1
(b) 5-10% loss - by weight or <u>minimum number of units affected</u>	-	2	-
(c) each additional 10% loss - by weight or <u>minimum number of units affected</u>	-	2	-
THAWED STATE (1 kg (2 lbs.) sample unit or blocks under 10 kg) (2 kg sample unit for blocks over 10 kg)			
3. <u>Colour</u>			
(a) abnormally dark	6	-	-
(b) darker than characteristic colour	-	2	-
4. <u>Bones</u>			
(a) Blocks not designated boneless - each <u>single bone</u> , other than pin bones, > 5 mm in any dimension or each cluster of such bones within an area of 3 cm ²	-	2	-
(b) Blocks designated boneless - each <u>single bone</u> > 5 mm in any dimension	2	-	-
or as an alternative:			
(a) Blocks not designated boneless - each single bone, other than pin bones, > 15 mm in length or > 1/3 mm in diameter or each cluster of such bones within an area of 3 cm ²	-	2	-
(b) Blocks designated boneless - each <u>single bone</u> > 15 mm in length or > 1/3 mm in diameter	2	-	-
5. <u>Blood Clots and Discolouration</u>			
(a) Each clot > 5 mm in any dimension	-	2	-
(b) Each significant discolouration 3-10 cm ²	-	-	1
(c) Over 10 cm ² , each additional complete 5 cm ²	-	-	1
6. <u>Fins or Part Fins, each instance</u>	-	2	-
7. <u>Skin and Membrane</u>			
(a) <u>Skinless blocks</u>			
(i) Each piece of skin > 3 cm ² < 10 cm ² , or each piece of <u>black membrane</u> > 5 cm ² to 10 cm ²	-	1	-
(ii) Over 10 cm ² , each additional complete 5 cm ²	-	-	1
(b) <u>Skin-on Blocks</u>			
(i) Each piece of <u>black membrane</u> > 5 cm ² < 10 cm ²	-	1	-
(ii) Over 10 cm ² , each additional complete 5 cm ²	-	-	1

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	Classification		
	<u>Serious</u>	<u>Major</u>	<u>Minor</u>
8. <u>Scales</u>			
(a) Skin-on fillets scaled			
(i) Each area of <u>scale</u> $> 3 \text{ cm}^2 - \leq 10 \text{ cm}^2$	-	-	1
(ii) Over 10 cm^2 <u>scale</u> , every additional complete 5 cm^2	-	-	1
(b) Skinless fillets			
Each complete unit of 5 loose <u>scales</u>	-	-	1
9. <u>Viscera</u> - each instance	2	-	-
10. <u>Parasites</u> - each instance	-	2	-
11. <u>Foreign Matter</u> - each instance	6	-	-
12. <u>Packaging Material</u>	2	-	-
<u>COOKED STATE</u> (100.g (4 os.) sub-sample)			
13. <u>Odour or flavour</u> distinctly objectionable	6	-	-
14. <u>Texture</u>			
(a) The flesh is definitely spongy, or rubbery, or mushy, or gelatinous, or tough	6	-	-
(b) The flesh is moderately spongy, or rubbery, or soft, or tough	4	-	-

ANNEX "D"

PROPOSED DRAFT DEFECT TABLE FOR FROZEN BLOCKS OF MINCED FISH FLESH

Defect Description	Classification		
	Serious	Major	Minor
FROZEN STATE (Sample Block)			
1. Dehydration			
(a) Deep			
(i) over 5% of area	6	-	-
(ii) less than 5% of area	-	4	-
(b) Moderate, over 5% of area	-	-	1
2. Block Irregularity			
(a) 2-5% loss - by weight or minimum number of units affected	-	-	1
(b) 5-10% loss - by weight or minimum number of units affected	-	2	-
(c) each additional 10% loss - by weight or minimum number of units affected	-	2	-
THAWED STATE (1 kg (2 lbs.) sample unit or blocks under 10 kg) (2 kg sample unit for blocks over 10 kg)			
3. Colour			
(a) abnormally dark	6	-	-
(b) darker than characteristic colour	-	2	-
4. Bones			
Each bone greater than 5 mm, or as an alternative: <u>each bone greater than 15 mm in length or greater than 0.5 mm in diameter</u>	2	-	-
5. Blood clots, discolouration, skin, membrane, scale, spinal cord			
(a) 10-25 instances	-	-	1
(b) 26-30 instances	-	2	-
(c) over 40, each additional 15	-	2	-
6. Parasites - each instance	-	2	-
7. Foreign Matter - each instance	6	-	-
8. Packaging Material	2	-	-
COOKED STATE (100 g (4 oz.) sub-sample)			
9. Odour or flavour distinctly objectionable	6	-	-
10. Texture			
The flesh is distinctly objectionable	6	-	-

Maximum Allowable Tolerances for Defects

Points Classification	Blocks made from Fillets, Fillet Pieces and Minced Fish	Blocks made from Minced Fish	Blocks made from Fillets and Fillet Pieces
Serious + Major	4	4	4
Serious + Major	10	10	10
Serious + Major + Minor	14	14	12