

codex alimentarius commission



FOOD AND AGRICULTURE
ORGANIZATION
OF THE UNITED NATIONS

WORLD
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ORGANIZATION



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Agenda Item 5b)

CX/FFP 05/27/6-Add.2

JOINT FAO/WHO FOOD STANDARDS PROGRAMME CODEX COMMITTEE ON FISH AND FISHERY PRODUCTS

Twenty-seventh Session
Cape Town, South Africa
28 February – 4 March 2005

PROPOSED DRAFT CODE OF PRACTICE FOR FISH AND FISHERY PRODUCTS (OTHER SECTIONS)

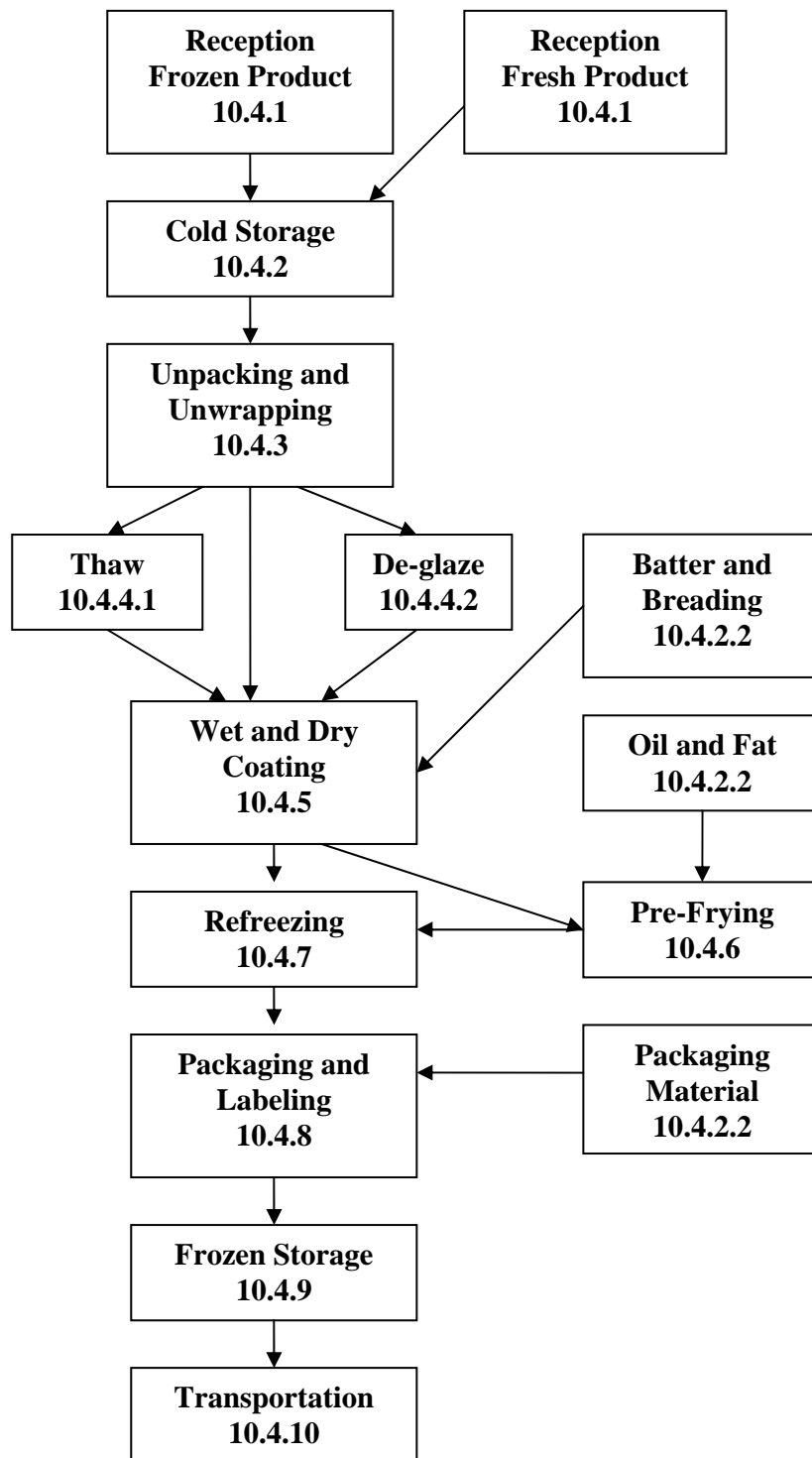
Proposal for New Work to Amend Section 10 of the Code of Practice on Fish and Fishery Products Quick Frozen Coated Fish Products

Prepared by Germany and The United States

Section 10 of the Fish and Fishery Product Code of Practice, adopted at Step 5/8 by the Commission, focuses on the proper processing of coated products. It is in some respects incomplete because it only addresses coated finfish products and does not include coated shrimp products (currently placed in draft Section 14 Shrimp and Prawns at Step 3) or coated molluscan shellfish (currently not addressed in any section). Both of these commodities are significant trade items internationally and are increasingly significant export items from developing countries that are performing value-added processing as a means of developing their economies. We recommend that for convenience and clarity, Section 10 address all coated products. Since coated products tend to utilize similar equipment and methodologies and have similar food safety and quality defects it is logical to place all coated fish and fishery products together. To that end we are proposing moving material relevant to coated shrimp and prawns from draft Section 14 to Section 10 and adding new material to section 10 on molluscan shellfish. The material from draft Section 14 contains some modifications being proposed by Germany and the United States. This new work will help promote trade by offering guidance about good manufacturing principles for molluscan shellfish. Moreover, coated fish is a commodity area that is prone to economic integrity issues and specific guidance may prevent future international trade disputes as well as promote good manufacturing practices.

This proposed new work aligns well with Codex Alimentarius six strategic objectives and the *criteria for the establishment of work priorities*. The draft amendments suggested as new work follow this page.

Figure 10.2
Coated Molluscan Shellfish Flow Diagram



10.4 PROCESSING OPERATIONS – MOLLUSCAN SHELLFISH

Coated molluscan shellfish should be manufactured from safe and wholesome molluscs that were subject to regulation and controls of a shellfish authority having jurisdiction of the harvesting, processing and handling that ensures that they are safe to consume. Shellfish can be cooked or raw prior to the coating process and should not contain significant defects such as sand, cuts, parasites or discoloration that may affect the consumer acceptability of the finished product. The methods depicted in this subsection are typical processing techniques applied to a wide variety of molluscan shellfish that are commonly used.

Refer to figure 10.2 for an example of a flow chart for coated molluscan shellfish processing.

10.4.1 Reception

All incoming raw materials should be subject to an examination for food safety hazards and defects based on appropriate Codex Alimentarius sampling plans.

10.4.1.1 Molluscan Shellfish

Potential Hazards: chemical contamination, biotoxins, microbiological contamination;

Potential Defects: decomposition, oxidation, freezer burn, parasites, torn or damaged molluscs, packaging material, shells or pieces of shells;

Technical Guidance:

- Molluscan shellfish should be obtained from sources that are approved by a Shellfish Authority to ensure that marine biotoxins are properly controlled and that the product was handled and processed in accordance to hygienic standards and proper process control to control food safety hazards.
- Temperatures of all incoming lots should be recorded. Frozen product should be -18° C or lower. Fresh product should not exceed 4° C.;
- Packaging material of frozen products should be examined for dirt, tearing and evidence of thawing;
- Cleanliness and suitability of the transport vehicle to carry fresh and frozen molluscan shellfish products should be examined for each incoming shipment;
- Use of temperature recording devices with the shipment is recommended;
- Representative samples should be taken to assess the level of possible hazards and defects;

Refer also to Section 7 Molluscan Shellfish

10.4.1.2 Other Ingredients

See Section 10.3.1.2

10.4.1.3 Packaging Materials

See Section 10.3.1.3

10.4.2 Storage of Raw Material, Other Ingredients and Packaging Materials

10.4.2.1 Molluscan Shellfish (Frozen Storage)

See Section 10.3.2.1

10.4.2.2 Other Ingredients and Packaging Materials

See Section 10.3.2.3

10.4.2.3 Molluscan Shellfish (Refrigerated Storage)

Potential Hazards: *microbiological growth, physical and chemical contamination;*

Potential Defects: *decomposition;*

Technical Guidance:

- raw fresh molluscan shellfish should be stored between 0° C and 4° C.;
- raw fresh molluscan shellfish should be properly protected from contamination;

See Section 10.3.2.2

10.4.3 Unwrapping, Unpacking

See Section 10.3.4

10.4.4 Production of Coated Molluscan Shellfish

10.4.4.1 Thawing Frozen Product

Potential Hazards: *microbiological growth;*

Potential Defects: *decomposition, product damage*

Technical Guidance:

- molluscan shellfish that is frozen should be subjected to controlled conditions during the thawing process (below 4° C) that prevent the growth of pathogenic and spoilage bacteria.
- sufficient controls should be instituted to ensure that the thawing product is not subject to conditions that are not hygienic or sanitary;
- care should be taken to ensure that the raw thawed product is not subjected to conditions that cause tearing and breakage of the product;

10.4.4.2 Deglazing

Potential Hazards: *none likely*

Potential Defects: *thawing of product, contamination from dirty deglazing water;*

Technical Guidance:

- controls should be instituted to ensure that immersion to remove ice glaze is not too long to cause the individual molluscan shellfish to thaw;
- thaw immersion water should be replaced at sufficient intervals to ensure that the product is not subject to dirt and other contaminants;

10.4.4.3 Separation of Individual Molluscan Shellfish

See Section 10.3.6

10.4.5 Coating

See Section 10.3.7

10.4.5.1 Wet Coating

See Section 10.3.7.1

10.4.5.2 Dry Coating

See Section 10.3.7.2

10.4.6 Pre-Frying

See Section 10.3.8

10.4.7 Re-Freezing

See Section 10.3.9

10.4.8 Packing and Labelling

See Section 10.3.10

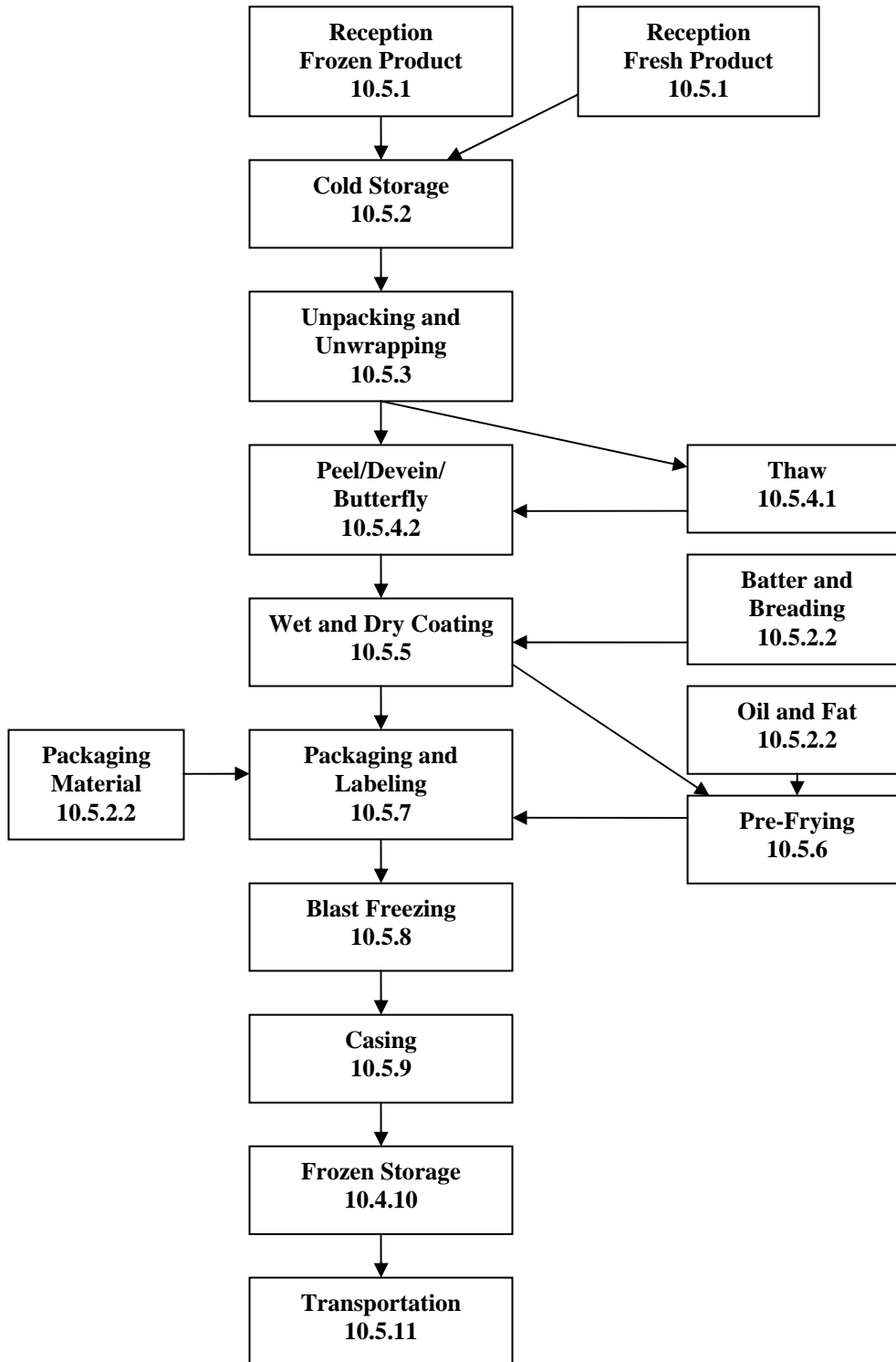
10.4.9 Storage of End Products

See Section 10.3.11

10.4.10 Transportation

See Section 10.3.12

Figure 10.3
Coated Shrimp Flow Diagram



10.5 PROCESSING OPERATIONS – COATED SHRIMP

Coated or breaded shrimp should be manufactured from good quality shrimp that have been subjected to sanitary conditions and processed under conditions that properly control food safety hazards. Coated shrimp usually are removed from their shells with the exception of the tail (telson) and with the alimentary canal or “vein” removed. They are commonly either split (butterfly style) or are round then subjected to the wet and dry coating mixtures and further processed. Production methodology of coated shrimp varies widely. The methods depicted below are commonly applied to tropical and sub-tropical shrimp breading.

Refer to Figure 10.3 for an example of a flow chart for coated shrimp processing.

10.5.1 Reception

See Section 14 Processing of Shrimp and Prawns.

All incoming raw materials should be subject to an examination for food safety hazards and defects based on appropriate Codex Alimentarius sampling plans.

10.5.1.1 Shrimp

Potential Hazards: sulfites

Potential Defects: black spot, soft flesh, inadequate head and viscera removal, decomposition

Technical Guidance:

- The presence of sulfites applied to the shrimp for the purpose of preventing black spot enzyme autolysis should be controlled to ensure that the product can be labeled as containing sulfites;
- Raw shrimp with extensive black spot damage should be eliminated as an undesirable quality factor;
- Raw shrimp may exhibit soft flesh characteristics that result from bacterial infection that render it unsuitable for further processing. Incoming lots should be checked for this quality factor;
- Raw shrimp should not exhibit large amounts of viscera, head or leg material;
- Raw shrimp should be checked for signs of temperature abuse and decomposition that would be unsuitable in the finished product;
- Temperatures of all incoming lots should be recorded. Frozen product should be -18° C or lower. Fresh product should not exceed 4° C.;
- Packaging material of frozen products should be examined for dirt, tearing and evidence of thawing;
- Cleanliness and suitability of the transport vehicle to carry fresh and frozen shrimp products should be examined for each incoming shipment;
- Use of temperature recording devices with the shipment is recommended;
- Representative samples should be taken to assess the level of possible hazards and defects;

See Section 14.2.1

10.5.1.2 Other Ingredients

See Section 10.3.1.2

10.5.1.3 Packaging Material

See Section 10.3.1.3

10.5.2 Storage of Raw Material, Other Ingredients and Packaging Materials

10.5.2.1 Shrimp (Frozen Storage)

See Section 10.3.2.1

10.5.2.2 Other Ingredients and Packaging Material

See Section 10.3.2.2

10.5.2.3 Shrimp (Refrigerated Storage)

Potential Hazards: *microbiological growth, physical and chemical contamination;*

Potential Defects: *decomposition;*

Technical Guidance:

- raw fresh shrimp should be stored between 0° C 4° C.;
- fresh shrimp should be properly protected from contamination;

See Section 10.3.2.1

10.5.3 Unwrapping, Unpacking

See Section 10.3.4

10.5.4 Production of Coated Shrimp

10.5.4.1 Thawing Frozen Product

Potential Hazards: *microbiological growth;*

Potential Defects: *decomposition, product damage, physical contamination*

Technical Guidance:

- Shrimp that is frozen should be subjected to controlled conditions during the thawing process (below 4° C.) that prevent the growth of pathogenic and spoilage bacteria;
- Sufficient controls should be instituted to ensure that the thawing product is not subject to conditions that are not hygienic or sanitary;
- Care should be taken to ensure that the raw thawed product is not subjected to conditions that cause tearing and breakage of the product;

10.5.4.2 Peeling, Deveining, Butterflying

Potential Hazards: *microbiological contamination, chemical contamination*

Potential Defects: *presence of shell, presence of vein, poor cut, damaged flesh*

Technical Guidance:

- Since peeling of larger shrimp usually used for coating is performed by hand care should be taken to ensure that pathogenic bacteria are not transmitted from worker's hands. Careful compliance to Section XX of the Codex Fish Code of Practice should be carried out;
- Thawed shrimp should be adequately protected from contamination and processed quickly so that the raw flesh does not deteriorate;

- Sufficient amounts of water should be applied to peeled shrimp to ensure that all shell remnants and veins are washed away and removed from the shrimp;
- If veins are removed by hand with a knife the product should be regularly checked to ensure that the cuts are made to product specifications;
- If the shrimp is butterfly cut by hand the product should be regularly checked to ensure that the cuts are made to product specifications;
- If the shrimp is butterfly cut by machine the cutting blades should be regularly inspected for sharpness so that the cut does not result in damaged shrimp;

10.5.5 Coating

See Section 10.3.7

10.5.5.1 Wet Coating

Potential Hazards: *microbiological growth in rehydrated batter*

Potential Defects: *improper batter viscosity, foreign material*

Technical Guidance:

- liquid batter preparations should be properly refrigerated or discarded at regular intervals to prevent microbiological growth;
- batter viscosity should be monitored to ensure the proper pick-up of dry coating material. Batter that is too thin or thick may result in a coating and flesh ratio that does not meet specifications and regulatory requirements;
- bags of dry batter mix should be stripped of their outer layer before being emptied into batter tanks to prevent dust and other contaminants from entering the rehydrated batter mix and into the final product;

See Section 10.3.7.1

10.5.5.2 Dry Coating

Potential Hazards: *unlikely*

Potential Defects: *defective coating, improper flesh/coating ratio, foreign material*

Technical Guidance:

- individual shrimp should be well separated during the coating process to ensure complete coating of the product;
- the total coating and flesh percentages should be regularly monitored using recognized methods to ensure that the specified flesh and coating ratio is attained;
- air blowers that eliminate excess coating from the shrimp should be adjusted and regularly monitored to ensure that the proper coating level is maintained;
- individual shrimp that exhibit incomplete or defective coating should be removed;
- bags of dry coating mix should be stripped of their outer layer before being emptied into batter tanks to prevent dust and other contaminants from entering the rehydrated batter mix and into the final product;

See Section 10.3.7.2

10.5.6 Pre-Frying

See Section 10.3.8

10.5.7 Packaging and Labeling

See Section 10.3.10

10.5.8 Blast Freezing

Potential Hazards: unlikely

*Potential Defects: poor product texture, excessive moisture
migration from flesh to coating*

Technical Guidance:

- blast freezing should be carried out quickly with the appropriate temperature and air flow parameters routinely monitored especially when the internal product temperature is between 0° C. and -4° C. in order to minimize crystallization of the flesh and the moisture migration that will occur from the flesh to the coating;

10.5.9 Casing

Potential Hazards: microbiological growth

Potential Defects: product thawing, moisture migration from flesh to coating

Technical Guidance:

- casing of the frozen containers should be carried out quickly to prevent thawing and quality problems such as texture changes of the shrimp flesh and moisture migration from the flesh to the coating;

10.5.10 Frozen Storage

See Section 10.3.11

10.5.11 Transportation

See Section 10.3.12