codex alimentarius commission

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

WORLD HEALTH ORGANIZATION

JOINT OFFICE: Viale delle Terme di Caracalla 00100 ROME Tel: 39 06 57051 www.codexalimentarius.net Email: codex@fao.org Facsimile: 39 06 5705 4593

Agenda Item 4 **CX/FFP 00/4-Add. 3**

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON FISH AND FISHERY PRODUCTS
Twenty-fourth Session
Ålesund, Norway, 5-9 June 2000

PROPOSED DRAFT CODE OF PRACTICE FOR FISH AND FISHERY PRODUCTS
GOVERNMENT COMMENTS AT STEP 3

MEXICO

Se sugiere:
It is suggested:

SECTION 2 DEFINITIONS

2.5 SHRIMPS AND PRAWNS

Behead	Means to remove the head from de entire shrimp or prawn;
Deveined shrimp	Means all the shrimp which have been peeled, the back of the peeled segments of the shrimp have been open out and the gut ("vein") removed;
Fresh shrimp	are freshly caught shrimp which have received no preserving treatment or which have been preserved only by chilling. It does not include freshly cooked shrimp;
Glazing	a protective layer of ice formed at the surface of a frozen product by spraying it with, or dipping it into, clean sea water, potable water, or potable water with approved additives;
Peeled shrimp	are shrimps with heads and all shell removed;
Raw headless shrimp	are raw shrimps with heads removed and the shell on;
Shrimp	in this code means any of the commercial species of crustacean commonly known as "shrimp", "shrimps" or "prawns" of the families *Penaeidae, Pandalidae, Palaemonidae* and *Crangonidae*;

Se sugiere:

9.1 FROZEN SHRIMPS AND PRAWNS - GENERAL

- fresh shrimps from an estuary, bay or aquaculture should be processed quickly;
- frozen shrimps for plant processing should be thawed in accordance with the procedures defined in section 9.2.6 and inspected for suitability;
- if the shrimps cannot be processed immediately, they should be placed in clean containers with an ample quantity of ice and stored in specially designated and appropriate areas in the **plant**.

9.2 PROCESSING OPERATIONS

Refer to figure 9.1 for a flow diagram of processing shrimps and prawns.

9.2.1 Reception (in behead area)

Potential Hazards: *Microbiological contamination.*

Potential Defects: *Unlikely*

Technical Guidance:

- raw materials should be monitored to verify sanitary quality;
- organoleptic characteristic such as appearance, odour, texture, etc.;
- chemical indicators of decomposition and/or contamination, for example TVBN, heavy metals, pesticides residues, antibiotics or drugs, etc.;
- microbiological criteria;
- foreign matter;
- all personnel should be trained in operations and handling;
- delays and exposure of the shrimps to the environment and a temperature above 4°C should be avoided;
- it is necessary to use approved suppliers or verify specifications in drugs or pesticide use, especially in bay, estuary and aquaculture origin;

The type of containers should meet the following requirements for transport and handling of the fresh or frozen product:

- the containers should protect the contents from contamination by micro-organisms or any other substance;
- their inner surfaces should not react with the contents in any way that would adversely affect the product or the containers;
- their outer surfaces should be resistant to corrosion under any likely conditions storage;
- they should be easy to open and easy to empty to avoid physical damage to the product.

9.2.2 Washing

Potential Hazards: *Microbiological contamination.*

Potential Defects: *Microbiological contamination.*

Technical Guidance:

To replace ice or drain warm water and replace for cold water:

- immediately after shrimps have been beheaded, the container should be washed in potable water to remove shrimp debris, dirt and other undesirable materials;
- replace ice or drain warm water and replace for cold water;
- remove waste products and maintain the water temperature below 4°C (39.2°F).

This flow chart is for illustrative purposes only. For in-factory HACCP implementation a complete and comprehensive flow chart has to be drawn up for each process.

References correspond to relevant Sections of the Code.

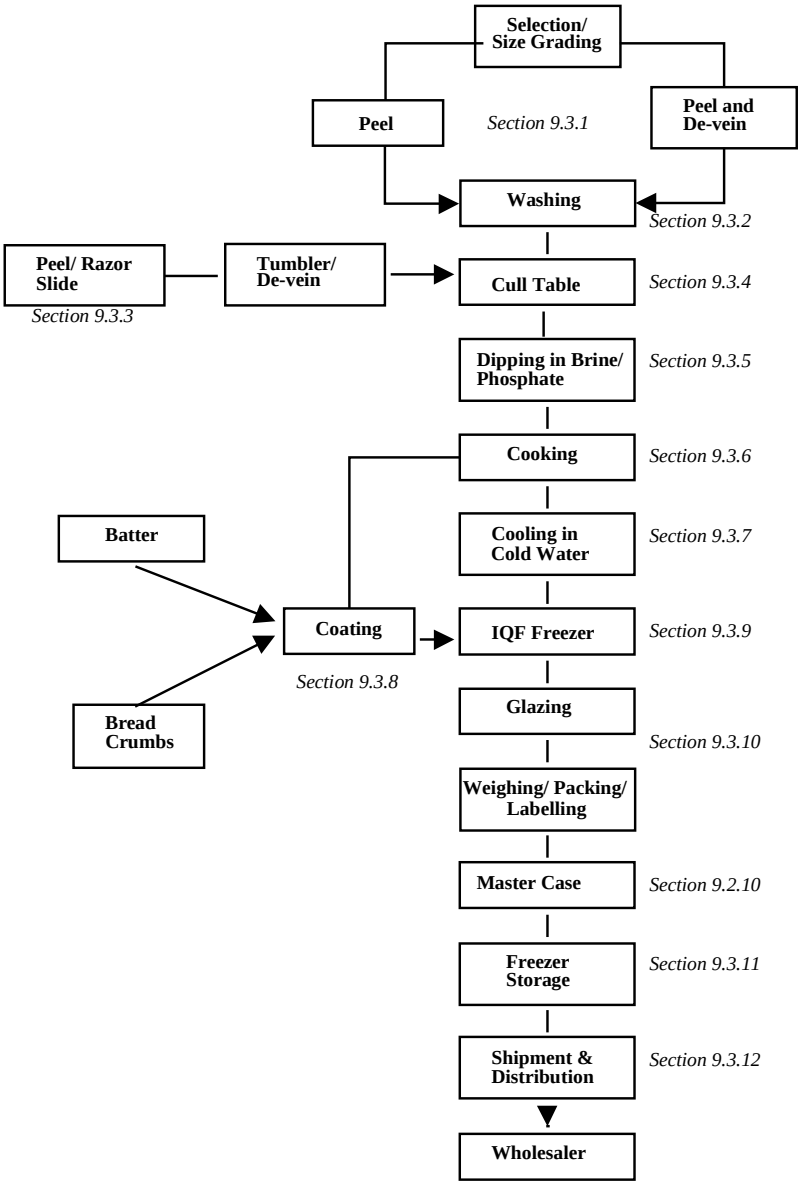

Figure 9.2 Example of a flow chart of I.Q.F. peel, peel and de-vein, cooked or breaded shrimp

9.2.3 Behead / Washing (process on board)

Potential Hazards: *Microbiological and chemical (combustible) contamination.*

Potential Defects: *Contamination by micro-organisms and extraneous material.*

Technical Guidance:

- it is necessary to cover the product to avoid contamination by bird faeces;
- all surfaces with which the shrimps might come into contact should be of suitable corrosive-resistant material;
- deck pounds or pens, stanchions, dividing boards and holding tanks should be constructed of suitable corrosive-resistant material. They should be adequate in quantity and height to prevent crushing of the catch due to excess weight or to the vessel's motion, and to hold the estimated catch;
- in **practice** wood is still used in many fisheries for deck pound boards and steel for stations and other fixtures. Where this is the case, the wood should be treated to prevent the entry of moisture and should be coated with a durable, non-toxic light coloured paint or other non-toxic surface coating that is smooth and easy to clean. Steelworks should be coated with anti-corrosion and non-toxic paint. Whenever possible, suitable corrosion-resistant materials should be used;
- after the product has been beheaded it should be washed with fresh or seawater of potable quality;
- the temperature of the product should be appropriate for the operation.

9.2.4 Freezing (process on board)

Potential Hazards: *Microbiological contamination.*

Potential Defects: *Unlikely*

Technical Guidance:

- for freezing in brine, it is necessary to avoid the use of copper serpentine (pipe coils). For freezing in horizontal or vertical plate freezers it is necessary to have a maintenance schedule to avoid any contamination with refrigeration;
- for freezing in brine it is necessary to remove the brine, and maintain a schedule. It is important to inspect the salt to be used for the brine;
- for freezing in brine it is necessary to avoid excess salt and calibrate salinity instruments;
- brine systems for freezing should be properly designed to give adequate cooling capacity;
- the freezing area should be covered and maintained to avoid contamination;
- all the tanks, heat exchangers, pumps and associated piping should be constricted of, or coated with, suitable corrosion-resistant material, and designed that they could be easily cleaned and disinfected.

9.2.5 Reception (in the processing area)

Consider all the points in Section **9.2.1**

9.2.6 Controlled Thawing

Potential Hazards: *Microbiological contamination.*

Potential Defects: *Unlikely*

Technical Guidance:

- for thawing in water, the water used should be either fresh water or sea water of potable quality, or use approved ice suppliers;
- shrimps and prawns should be thawed rapidly in properly designed equipment. The water temperature should be maintained no higher than 20ºC (68ºF) and the water should not be reused;
- it is necessary to implement thawing procedures;
- if thawing tanks are used, a constant supply of potable or clean sea water at a temperature maintained no higher than 20ºC (68ºF) should be provided and it should not be reused;
- prior to thawing, the packaging material, such as wax cartons, should be removed so that they will not come into contact with the thawing water;

- it is desirable for the exit conveyor, leading from the thawing tank, to be equipped with a series of low velocity sprays to wash the shrimps as they leave the tank. The water used for this purpose should be cold so that the shrimps are being chilled whilst being washed;
- immediately after thawing the shrimps or prawns should remain chilled whilst processing to avoid abuse of temperature.

9.2.7 Inspection / Pre-selection

Potential Hazards: *Physical contamination.*

Potential Defects: *Unlikely*

Technical Guidance:

- shrimps carried out of the tank by a conveyor should be inspected to detect any foreign matter or odour by chemical decomposition;
- shrimps or prawns should be sorted into species and trade quality categories for the relevant market;
- it is necessary to avoid delays, which increase temperature and the likelihood of black spots in shrimps or prawns;
- personnel should be trained to identify any change of quality.

9.2.8 Packaging / Labelling

Potential Hazards: *Physical contamination.*

Potential Defects: *Incorrect labelling.*

Technical Guidance:

- packaging material should be visually checked and be within specifications. It should also be clean, durable, sufficient for its intended use and of food grade material to avoid damage or contamination of the product;
- approved packaging material suppliers should be used;
- the packaging operations should be conducted in a manner to minimise the risk of contamination and decomposition;
- it is necessary to check packaging materials before use to avoid incorrect labelling.

9.2.9 Freezing

Potential Hazards: *Microbiological contamination.*

Potential Defects: *Unlikely.*

Technical Guidance:

Products for freezing should be frozen as quickly as possible since unnecessary delays before freezing will cause temperature of the shrimp to rise, increasing the rate of quality deterioration and reducing shelf-life due to the action of micro-organisms and undesirable chemical reactions.

- plant production shall be geared to the capacity of freezing, avoid overload;
- a schedule of checks should be made to ensure the operation of freezing is correct;
- accurate records of all freezing operations should be kept;
- temperature in the freezer should be -35ºC to -40ºC and the product temperature should not rise above -18°C

9.2.10 Glaze and Master Case

Potential Hazards: *Microbiological and physical contamination.*

Potential Defects: *Unlikely*

Technical Guidance:

- during the glazing operation delays or exposure of the product to a high temperature should be avoided;
- the glaze temperature should be maintained between 0°C and 2°C;
- potable cold water should be used to glaze the product;
- master material should be of food grade material and appropriate for labelling and weighing and provide good protection for the product;

- it is necessary to use approved packaging material suppliers.

9.2.11 Freezer Storage

Potential Hazards: *Microbiological contamination.*
Potential Defects: *Unlikely*
Technical Guidance:

- frozen products should be immediately transferred to the freezer for storage;
- temperature should be monitored and recorded.
- temperature in the freezer should be -20ºC to -25ºC and the product temperature should be below -18°C;
- schedule for checks should be made to ensure correct operation of freezer storage ;
- plant production shall be geared to the capacity of freezer to avoid overload.

9.3 I.Q.F. PEEL, PEEL AND DE-VEIN, COOKED OR BREADED SHRIMPS OR PRAWNS

9.3.1 Peel or Peel and De-vein

This step peel or peel and de-vein, is considered a manual operation. Figure 9.2 is an example flow chart for I.Q.F. peel, peel and de-vein, cooked or breaded shrimps.

- the design of the peel and de-vein line should be continuous and sequential to permit the uniform flow without stoppages or slow-downs and removal of waste;
- any damaged, contaminated or otherwise unacceptable shrimps or prawns should be discarded;
- all the surfaces and utensils should be cleaned, before, during and after process;
- piling large quantities of shrimps or prawns over the table should be avoided;
- care should be taken to avoid contamination and damage to shrimps or prawns

9.3.2 Washing

Potential Hazards: *Microbiological contamination.*
Potential Defects: *Contamination by micro-organisms and extraneous material.*
Technical Guidance:

- immediately after peel or peel and de-vein, the shrimps or prawn should be washed with cold potable water to remove all impurities, vein, or shell ;
- for washing by immersion warm water should be drained and replaced for cold water below 4°C;
- the resulting wastewater should be disposed of in a suitable manner.

9.3.3 Peel / Razor Slide

This step is considered a mechanical operation.

- the equipment should have a maintenance schedule in order to keep in good condition;
- any damaged, contaminated or otherwise unacceptable shrimps or prawns should be discarded;
- all the surfaces and utensils should be cleaned, before, during and after process;
- piling large quantities of shrimps or prawns over the table should be avoided;
- care should be taken to avoid contamination and damage to shrimps or prawns;
- the equipment should be dismantled and each piece cleaned by trained personnel.

9.3.4 Cull Table

Potential Hazards: *Microbiological contamination.*
Potential Defects: *Contamination by micro-organisms and extraneous material.*
Technical Guidance:

- avoid delays in the removal of defective product (i.e. broken shrimps or prawns, pieces, unpeeled and de-veined shrimps or prawns, black spots, etc.);

- all the surfaces and utensils should be cleaned, before, during and after the process;
- care should be taken to avoid contamination and damage to shrimps or prawns;
- shells left by the machine should also be checked for incomplete removal of meat and the presence of unshelled or broken pieces of shrimps;
- peeled and de-veined shrimps or prawn should be thoroughly washed, preferably by a spray of cold potable water or a weak brine solution.

9.3.5 Dip in brine or polyphosphate solution

Potential Hazards: *Chemical and microbiological contamination.*

Potential Defects: *Contamination by micro-organisms .*

Technical Guidance:

- immediately after removal of shell, defective product or black spot it is necessary to dip the product in cold brine or polyphosphate solution;
- only fresh brine or polyphosphate solution should be used;
- the ratio and concentration of brine or polyphosphate solution to shrimp should be adjusted according to the desired product;
- it is necessary to calibrate brine measurement apparatus;
- the time of immersion and the temperature should be controlled to obtain the desired product;
- salt and polyphosphate are ingredients which do not meet the specifications and should be controlled to avoid the risk that they might be processed;
- the brine or polyphosphate solution should be replaced and dip tanks and other dipping equipment should be thoroughly cleaned at frequent intervals.

9.3.6 Cooking

Potential Hazards: *Microbiological contamination*

Potential Defects: *Over/undercooking.*

Technical Guidance:

- cooking procedure, in particular, time and temperature, should be clearly defined;
- the cooking schedule should be reviewed before each process;
- shrimp cooked together in batches should be similar in size to ensure they are cooked at an even temperature and avoid temperature differentials;
- potable water should be used for steam;
- it is necessary to have a cooker maintenance schedule.

9.3.7 Cool in Water

Potential Hazards: *Microbiological contamination.*

Potential Defects: *Unlikely.*

Technical Guidance:

- cooked shrimp should be cooled as quickly as possible to bring the product to a temperature range limiting bacteria proliferation or toxin production;
- the cooling schedule should enable control of the temperature and time;
- use approved ice suppliers;
- enough cool potable water should be supplied. The same water should not be used for cooling more than one batch.
- avoid contamination with raw materials.

9.3.8 Breading and coating

Potential Hazards: *Microbiological contamination.*
Potential Defects: *Contamination by micro-organisms and extraneous material.*
Technical Guidance:

- the breading and coating schedule should sufficiently mix the ingredients and use the correct quantities;
- ingredients used should be controlled to meet specifications;
- ingredients should be covered and kept in cool storage to avoid the risk of contamination;
- mix ingredients should be replaced and the equipment should be thoroughly cleaned. Avoid the contact of dry mix and product;
- potable water should be used to mix ingredients;
- ensure ingredients are within buyer specifications.

9.3.9 I.Q.F Freezer

Potential Hazards: *Microbiological contamination.*
Potential Defects: *Contamination by micro-organisms and extraneous material.*
Technical Guidance:

- shrimp in batches should be similar in size to control freezing time and avoid burns;
- freezer schedule should be followed to ensure correct operation of freezing.

9.3.10 Glazing/Weight/Pack/Label

Potential Hazards: *Microbiological and physical contamination.*
Potential Defects: *Incorrect label*
Technical Guidance:

- frozen shrimp should be glazed to protect quality during storage and distribution. Glazing should be adjusted according to similar;
- glazed shrimp should be immediately weighed, packed and labelled to avoid risk of contamination and protect quality during storage and distribution;
- frozen and packed shrimp should be immediately transferred to the freezer storage;
- temperature should be monitored and recorded;
- all wrappings, adhesives and printing material likely to come into contact with the product should be odourless. The packaging should ensure that the original product flavour and odour are retained. Furthermore there should be no risk that substances likely to be harmful to health will be transferred from the packaging material to the food.

9.3.11 Freezer Storage

Potential Hazards: *Microbiological contamination.*
Potential Defects: *Unlikely*
Technical Guidance:

- storage temperature should be between -20ºC to -25ºC;
- the product temperature should be below -18°;
- the product should be handled carefully and not over-stacked.

9.3.12 SHIPMENT AND DISTRIBUTION

Potential Hazards: *Microbiological contamination.*
Potential Defects: *Unlikely*
Technical Guidance:

- before loading the cleanliness and sanitation of the truck containers should be verified;
- before loading the containers should be pre-cooled;
- avoid delays during the loading and unnecessary exposure to elevated temperatures;

- monitor temperatures during transport;
- vehicles should be designed and made with walls, floors and roofs of a suitable corrosion-resistant material with smooth non-absorbent surfaces. Floors should be adequately drained;
- ensure the temperature of frozen shrimps or prawns is maintained at -18ºC or below;
- protect the frozen shrimps or prawns against contamination from dust, exposure to higher temperatures and the drying effects of the sun or wind;
- permit the free flow of chilled air around the load;
- load for good air flow and avoid physical damage.

EUROPEAN COMMUNITY

Agenda Item 4 Proposed Draft Code of Practice for fish and fishery products CX/FFP 00/4.

The European Community congratulates the drafting group on its work and would like to state its wish to be associated with further work on this issue. However, considering that some parts are still to be developed, the European Community suggests maintaining the proposed Draft at step 3 for the moment.