

PHILIPPINE NATIONAL STANDARD

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Quick frozen raw squid



BUREAU OF PRODUCT STANDARDS

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Quick Frozen Raw Squid

Foreword

The Philippine National Standard (PNS) for Quick frozen raw squid was adopted from the existing international Codex Standard for Quick Frozen Raw Squid (CODEX STAN 191-1995). Modifications were made from the Codex Standard in order to tailor fit the standard to Philippines requirements, particularly on the formatting and definition of terms.

A memorandum was circulated requesting comments from responsible agencies and competent authorities for the finalization of the draft PNS. Accordingly, relevant comments and inputs were included in the standard.

The PNS for Quick frozen raw squid aims to provide common understanding on the scope of the standard, product description, essential composition and quality factors, food additives, definition of defectives, hygiene and handling, product presentation, packaging and labeling requirements, and methods of sampling, examination and analyses and the requirements for product lot acceptance.

Quick frozen raw squid

1 Scope

This standard applies to quick frozen raw squid and parts of raw squid, as defined below and offered for direct consumption without further processing. It does not apply to products indicated as intended for further processing or for other industrial purpose.

2 References

The titles of the standards publications referred to in this standard are listed on the inside back cover.

3 Definition of terms

For the purpose of this standard, the following terms shall mean:

3.1**dehydration**

is the loss of moisture from the frozen product through evaporation

3.2**freezing**

is a process which is carried out in appropriate equipment in which the initial temperature of the product is reduced to $-18\text{ }^{\circ}\text{C}$ or lower with most of the tissue water turning into ice. The process shall not be regarded as complete unless and until the product temperatures has reached $-18\text{ }^{\circ}\text{C}$ ($0\text{ }^{\circ}\text{F}$) or lower at the thermal centre after thermal stabilization

3.2.1**quick freezing**

a freezing rate at which no part of the fish takes more than two hours to cool from $-1\text{ }^{\circ}\text{C}$ to $-5\text{ }^{\circ}\text{C}$, which further reduction of the temperature at the end of the freezing period to the recommended cold storage temperature.

3.3**food**

is any substance, whether processed or semi-processed or raw which is intended for human consumption including beverages, chewing gum and any substance, which has been used as an ingredient on the manufacture, preparation or treatment of food

3.4**glazing**

a process in which thin protective layer of ice is allowed to form on the surface of the frozen product by spraying/brushing it with, or dipping it in potable water at $0\text{ }^{\circ}\text{C}$, to prevent dehydration and oxidation of the product.

**3.5
ingredient**

is any substance including food additive, used as a component in the manufacture or preparation of food, and present in the final product in its original or modified form

**3.6
squid**

is a large, diverse group of marine cephalopods having a distinct head, bilateral symmetry, a mantle, and eight arms and two tentacles arranged in pairs

4 Description

4.1 Product definition

Quick frozen squid is whole or headless squid belonging to the families, *Loliginidae* and *Ommastrephidae* which have been subjected to a quick freezing process sufficient to reduce the temperature of the product to -18 °C (0 °F) or lower.

4.2 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 unless and until the product temperature has reached -18°C or colder at the thermal centre after thermal stabilization. The product shall be kept deep frozen so as to maintain the quality during transportation, storage and distribution.

Industrial repacking of quick frozen products must be conducted under controlled conditions to maintain the quality. Glazing may be applied for products intended for prolonged storage to minimize dehydration and oxidation.

5 Essential composition and quality factors

5.1 Squid

Quick frozen squid shall be prepared from best quality squid, which are fit to be sold fresh for human consumption.

5.2 Glazing

If glazed, the water used for glazing or preparing glazing solutions shall be of potable quality or shall be clean sea-water. Potable water is fresh-water fit for human consumption. Standards of potability shall not be less than those contained in the latest edition of the WHO "International Guidelines for Drinking Water Quality". Clean sea-water is sea-water which meets the same microbiological standards as potable water and is free from objectionable substances.

5.3 Final Product

5.3.1 Products shall meet the requirements of the standards when lots examined in accordance with Clause 10 comply with the provisions stipulated in Clause 9.

5.3.2 Products shall be examined by the methods given in Clause 8.

5.3.3 The final product shall conform to the following microbiological characteristics in Table 1.

Table 1 – Microbiological characteristics

Microbiological parameter	Limit
1. Aerobic plate count (APC)	500,000 /g
2. <i>Escherichia coli</i>	11/g
3. <i>Salmonella</i>	Absent in 25 g
4. <i>Shigella</i>	Absent
5. <i>Staphylococcus aureus</i>	1,000 /g
6. <i>Vibrio cholera</i>	Absent

6 Food additives

No food additives are permitted in these products.

7 Hygiene and handling

7.1 The final product shall be free from any foreign material that poses a threat to human health.

7.2 When tested by appropriate methods of sampling and examination prescribed by the Codex Alimentarius Commission, the product:

- (i) shall be free from microorganisms or substances originating from microorganisms in amounts which may pose a hazard to health in accordance with standards established by the CAC; and
- (ii) shall not contain any other substance in amounts which may pose a hazard to health in accordance with standards established by the Codex Alimentarius Commission.

7.3 It is recommended that the product covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the Recommended International Code of Practice – General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 3-1997) and the following relevant Codes:

- (i) the Recommended International Code of Practice for the Processing and Handling of Quick Frozen Foods (CAC/RCP 8-1976);
- (ii) the Recommended International Code of Practice for Frozen Fish (CAC/RCP 16-1978); and
- (iii) the Recommended International Code of Practice for Cephalopods (CAC/RCP 37-1989).

8 Presentation, packaging and labeling

8.1 Product presentation

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

- (i) meets all the requirements of this standard; and
- (ii) is adequately described on the label to avoid confusing or misleading the consumer.

8.2 Packaging

The product shall be packed in a food grade packaging materials either vacuum pack or ordinary Polyethylene (PE) bags made of suitable film or laminates, which are clean and free from any foreign matters or contaminants. The frozen finfish products shall be packed by count per unit of weight or per package.

8.3 Labeling

In addition to the provisions of the Codex General Standard for the Labeling of Prepackaged Foods (CODEX STAN 1-1985), the following specific provisions apply:

8.3.1 Labeling of retail packages/containers

8.3.1.1 The name of the product

- (i) The name of the product shall be "squid" or another name according to the law, custom or practice in the country in which the product is to be distributed.
- (ii) There shall appear on the label reference to the presentation, in close proximity to the name of the product in such additional words or phrases that will avoid misleading or confusing the consumer.
- (iii) In addition, the labeling 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 3.2.
- (iv) The label shall state that the product should be maintained under conditions that will maintain the quality during transportation, storage and distribution.

- (v) If the product has been glazed with sea-water, a statement to this effect shall be made.

8.3.1.2 Net contents (Glazed products)

Where the food has been glazed, the declaration of net contents of the food shall be exclusive of the glaze.

8.3.1.3 Storage instructions

The label shall include terms to indicate that the product shall be stored at a temperature of -18 °C or colder.

8.3.1.4 The words “best before” followed by the date, month and year indicating end of the period at which the product shall retain its optimum quality attributes at a stated storage condition shall be included in the label.

8.3.1.5 The label shall indicate the name “Product of the Philippines”.

8.3.2 Labeling of non-retail containers

Information specified above shall be given either on the container or in accompanying documents, except that the name of the food, lot identification, and the name and address of the manufacturer or packer as well as storage instructions shall always appear on the container.

However, lot identification, and the name and address may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

9 Sampling, examination and analyses

9.1 Sampling

9.1.1 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 42-1977. Sampling of lots composed of blocks shall be in accordance with the sampling plan developed for quick frozen fish blocks (reference to be provided). The sample unit is the primary container or for individually quick frozen products is at least 1 kg portion of the sample unit.

9.1.2 Sampling of lots for examination of net weight shall be carried out in accordance with an appropriate sampling plan meeting the criteria established by the CAC.

9.2 Sensory and physical examination

Samples taken for sensory and physical examination shall be assessed by persons trained in such examination and in accordance with procedures elaborated in Sections 8.3 through 8.5, Annex A and the *Guidelines for the Sensory Evaluation of Fish and Shellfish in Laboratories (CAC/GL 31 - 1999)*.

9.3 Determination of net weight

9.3.1 Determination of net weight of product not covered by glaze

The net weight (exclusive of packaging material) of each sample unit representing a lot shall be determined in the frozen state.

9.3.2 Determination of net weight of products covered by glaze

As soon as the 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 paper towel and weigh the product in a tare pan.

9.4 Procedure for thawing

The sample unit is thawed by enclosing it in a film-type bag and immersing in water at room temperature (not higher than 35 °C). The complete thawing of the product is determined by gently squeezing the bag occasionally so as not to damage the texture of the squid until no hard core of ice crystals are left.

9.5 Cooking methods

The following procedures are based on heating the product to an internal temperature of 65 °C – 70 °C. Cooking times vary according to the size of the product and the temperatures used. The exact times and conditions of cooking for the product should be determined by prior experimentation.

9.5.1 Baking procedure – Wrap the product in aluminum foil and place it evenly on a flat cookie sheet or shallow flat pan.

9.5.2 Steaming procedure – Wrap the product in aluminum foil and place it on a wire rack suspended over boiling water in a covered container.

9.5.3 Boil-In-Bag procedure – Place the product into a boilable film-type pouch and seal. Immerse the pouch into boiling water and cook.

9.5.4 Microwave procedure – Enclose the product in a container suitable for microwave cooking. If plastic bags are used, check to ensure that no odor is imparted from the plastic bags. Cook according to equipment instructions.

10 Definition of defectives

The sample unit shall be considered defective when it exhibits any of the properties defined below.

10.1 Dehydration

Greater than 10 % of the surface area of the sample unit exhibits excessive loss of moisture clearly shown as white or yellow abnormality on the surface which masks the color of the flesh and penetrates below the surface, and cannot be easily removed by scraping with a knife or other sharp instrument without unduly affecting the appearance of the squid.

10.2 Foreign matter

The presence in the sample unit of any matter which has not been derived from squid (excluding packing material), does not pose a threat to human health, and is readily recognized without magnification or is present at a level determined by any method including magnification that indicates non-compliance with good manufacturing and sanitation practices.

10.3 Odor, flavor and color

A sample unit affected by persistent and distinct objectional odors or flavors indicative of decomposition, and may exhibit pale brown color.

10.4 Texture

Textural breakdown of the flesh, indicative of decomposition, characterized by muscle structure which is mushy or paste-like.

11 Lot acceptance

A lot shall be considered as meeting the requirements of this standard when:

- (i) the total number of defectives as classified according to Section 9 does not exceed the acceptance number (c) of the appropriate sampling plan in the Sampling plans for Prepackaged Foods (AQL-6.5) (CAC/RM 42-1977);
- (ii) the average net weight of all sample units is not less than the declared weight, provided there is no unreasonable shortage in any container;
- (iii) the Food Additives, Hygiene and Labeling requirements of Sections 5, 6 and 7.3 are met.

Annex A

Sensory and physical examination

1. Complete net weight determination according to defined procedures in Section 8.3 (de-glaze as required).
2. Examine the frozen squid for the presence of deep dehydration by measuring those areas which can only be removed with a knife or other sharp instrument. Measure the total surface area of the sample unit, and determine the percentage affected using the following formula:
$$\frac{\text{area affected}}{\text{total surface area}} \times 100 \% = \% \text{ affected by deep dehydration}$$
3. Thaw and individually examine each squid in the sample unit for the presence of foreign matter and color.
4. Examine each squid using the criteria outlined in Section 9. Flesh odors are examined by making a cut parallel to the surface of the flesh so that the exposed surface can be evaluated.
5. In cases where a final decision on odor and texture cannot be made in the thawed uncooked state, a portion of the sample unit is sectioned off and the odor, flavor and texture confirmed without delay by using one of the cooking methods defined in Section 8.5.

References

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The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

DA BFAR, 2001. Fisheries Administrative Order No. 210. Rules and Regulations on the Exportation of Fresh, Chilled and Frozen Fish and Fishery/Aquatic Products. Diliman, Quezon City. Department of Agriculture, Bureau of Fisheries and Aquatic Resources.

FAO/WHO CODEX STAN 191 – 1995. Codex Standard for Quick Frozen Raw Squid. Rome, Italy. Food and Agriculture Organization/World Health Organization Codex Alimentarius Commission.

International Commission on Microbiological Specifications for Food (ICMSF), 1986.

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