

# PHILIPPINE NATIONAL STANDARD

PNS/BFAD 22:2010  
ICS 67.060

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## Fried corn snacks (Chichacorn) – Specification



**BUREAU OF PRODUCT STANDARDS**

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## **Foreword**

The Philippine National Standards for Fried Corn Snacks (Chichacorn) and Recommended Code of Practice for the Processing and Handling of Fried Corn Snacks (Chichacorn) are product standards developed under the Project "Development of Standards for Selected Ethnic Food Products - Phase I" by the Technical Working Group (TWG). The TWG is composed of representatives from College of Home Economics – UP Diliman, Philippine Chamber of Food Manufacturers Inc. (PCFMI), Philippine Association of Food Technologists Inc. (PAFTI), Integrated Food Manufacturers Association of the Philippines (INFOMAPP), Bureau of Agriculture and Fisheries Product Standards, Department of Agriculture (BAFPS-DA), Food Products Division – Department of Trade and Industry (FPD-DTI), Industrial Technology Development Institute - Department of Science and Technology (ITDI-DOST), Bureau of Product Standards - Department of Trade and Industry (BPS-DTI), Philippine Council for Industry and Energy Research and Development – Department of Science and Technology (PCIERD – DOST) and Department of Health-Food and Drug Administration (DOH-FDA).

The Standard and RCP were developed to ensure the safety and quality of the fried corn snacks and to make it acceptable and globally competitive in the world market.

The TWG tested and analyzed different samples of the product. They reviewed the draft Standard and Recommended Code of Practice before submitting it to the FDA for public consultation.

The draft was posted at the BFAD website to solicit comments from different stakeholders before the public consultations were conducted. The public consultation workshops were done on two occasions – first, in Batac, Ilocos Norte (Region I) on 17 August 2007 and second in Quezon City (National Capital Region) on 07 September 2007.

The final drafts were forwarded to the BAFPS-DA for Sanitary and Phytosanitary (SPS) notifications by the World Trade Organization Secretariat for comments by other countries.

The final copy was submitted to the BPS-DTI ready for adoption.

## **1 Scope**

This standard is concerned with the receipt of raw materials and ingredients, preparation and processing of fried corn snacks products as defined in this Code, in order to conform with the required standards stated in PNS/BFAD No. 22:2009 Standards for Fried Corn Snacks. The product shall be prepared from whole kernel of corn of *Zea mays* spp. used for fried corn snacks processing.

This Code is intended to provide guidelines to achieve compliance with the standards for fried corn snacks packed in any suitable container.

## **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 definitions apply:

### **3.1 aflatoxins**

these are secondary metabolites known to be toxic to humans and are produced by fungi belonging to the genus *Aspergillus* including *A. flavus*, *A. parasiticus*, *A. vesicolor* and *A. indulans* on suitable hosts/substrates such as peanut, corn, copra, cassava and other oilseeds

### **3.2 container**

it is any form of packaging material, which completely or partially encloses the food (including wrappers). A container may enclose the food as a single item or several units or types of prepackaged food when such is presented for sale to the consumer

### **3.4 food**

it is any substance, whether processed, semi-processed or raw, which is intended for human consumption, and includes drink, chewing gum and any substance which has been used in the manufacture, preparation or treatment of "food" but does not include cosmetics or tobacco or substances used only as drugs

### **3.5 food additive**

it is any substance the intended use of which results or may reasonably be expected to result, directly or indirectly, in its becoming a component or otherwise affecting the characteristics of any food (including any substance intended for use in producing, manufacturing, packing, processing, preparing, treating, packaging, transporting, or holding food; and including any source of radiation intended for any such use), if such substance is not generally recognized, among experts qualified by scientific training and experience to evaluate its safety, as having been adequately shown through scientific procedures to be safe under the conditions of the intended use (R.A. 3720. Food, Drugs and Cosmetic Act).

**3.6**

**food standard**

it is a regulatory guideline that defines the identity of a given food product (i.e. its name and the ingredients used for its preparation) and specifies the minimum quality factors and, when necessary, the required fill of the container. It may also include specific labeling requirements other than or in addition to the labeling requirements generally applicable to all prepackaged foods

**3.7**

**free fatty acid**

it is the amount of fatty acids in the product, liberated from fats and oils through hydrolysis and used as a quality indicator of hydrolytic rancidity

**3.8**

**frying**

it is cooking in hot fat or oil deep enough to immerse the food entirely

**3.9**

**ingredient**

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

**3.10**

**label**

it includes any tag, brand, mark, pictorial, or other descriptive script, written, printed, marked, embossed or impressed on, or attached to the container

**3.11**

**labeling**

it is any written, printed or graphic matter (1) upon any article or any of its container or wrappers and/or (2) accompanying the packaged food

**3.12**

**lot**

it is food produced during a period of time and under more or less the same manufacturing condition indicated by a specific code

**3.13**

**moisture content**

it is the percentage of water in the product obtained using the vacuum oven method

**3.14**

**packaging**

it is the process of packing that is part of the production cycle applied to a bulk product to obtain the finished product. Any material, including painted material, employed in the packaging of a product including any outer packaging used for transportation of shipment. Packaging materials are referred to as primary or secondary according to whether or not they are intended to be in direct contact with the product

**3.15**

**peroxide value**

it is a measure of the primary oxidation products such as peroxides and hydroperoxides that develops in oils or fats and used as an indicator of oxidative rancidity

**3.16**

**sweetening agent**

it includes one or more of the sugars, honey, high intensity sweeteners and artificial sweeteners

**3.17**

**water activity**

it is the ratio of vapor pressure of water in the product to the water vapor pressure of pure water at the same temperature. It is also a measure of water available for the growth of microorganisms

**4 Description of products**

**4.1 Product definition**

Fried corn snacks is whole corn kernel prepared by frying to attain a crunchy texture with or without salt/s, spices, sweetening agent/s or other food ingredients and additives and packed in any suitable packaging materials.

**4.2 Process definition**

The product shall have undergone a frying process sufficient to ensure quality and shelf life stability at ambient conditions and shall be packed in any suitable packaging materials. It may undergo other processes to reduce moisture such as roasting and dehydration.

**5 Essential composition and quality factors**

**5.1 Raw materials**

**5.1.1 Basic ingredients**

**5.1.1.1 Corn kernels** – to be used shall be sound, clean and mature from any cultivated variety conforming to the characteristics of the *Zea mays* spp. It shall conform to specifications stated in PNS/BAFPS 10:2004. Grains-Corn – Grading and Classification.

**5.1.1.2 Cooking oil** – must be of food-grade quality and shall be of vegetable origin. It must conform to RA 8976 of the Food Fortification Law.

## 5.1.2 Optional ingredients

**5.1.2.1 Salt** – coarse or fine sodium chloride of food grade quality and meets the purity requirements as specified in Section 4.1 of the Implementing Rules and Regulations of the ASIN Law, Republic Act (RA) 8172, an Act Promoting Salt Iodization Nationwide.

**5.1.2.2 Flavoring agent/s** – must conform to the regulations of BFAD as defined in Bureau Circular 16:2006 and/or authority.

**5.1.2.3 Sweetening agent** – one or more of the sugars, honey, high intensity sweeteners or artificial sweeteners.

**5.1.2.4 Other ingredients** – all other ingredients to be used shall be of food grade quality and conform to all applicable food standards.

## 5.2 Quality criteria

### 5.2.1 General requirements

Fried corn snacks shall have the following characteristics:

**5.2.1.1 Water activity** – The product shall have a maximum water activity of 0.60 at 25 °C.

**5.2.1.2 Moisture content** – The product shall have a moisture content of not greater than 3.0 %.

**5.2.1.3 Fat content** – The product shall have a fat content of not greater than 23 %.

**5.2.1.4 Free fatty acid** – The product shall have a free fatty acid content of not greater than 0.50 % as oleic acid.

**5.2.1.5 Peroxide value** – The product shall have a peroxide value not greater than 5.0 %.

**5.2.1.6 Aflatoxin** – The product shall be aflatoxin free or not to exceed 20 ppb.

**5.2.1.7 Sensory properties** – The product shall have the characteristic color, aroma, and flavor of corn. It shall have a crunchy texture with uniform size and shape. It shall be free from any objectionable sensory characteristic.

### 5.2.2 Types of defects

**5.2.2.1 Foreign matter** – The presence in the sample unit of any matter, which has not been derived from corn, does not pose a threat to human health and is readily recognized without magnification or is present at a level determined by magnification method or any equivalent method that indicates non-compliance with good manufacturing practices and sanitation practices.

**5.2.2.2 Odor/flavor/color** – A sample unit affected by objectionable odors or flavors indicative of decomposition or rancidity and unacceptable color.

**5.2.3 Classification of “defectives”** – A container that has any of the type of defects set in 4.2.2 shall be considered as “defective”.

**5.2.4 Lot acceptance** – A lot shall be considered as meeting the applicable quality requirements when the number of “defectives”, as defined in sub-section 4.2.3, does not exceed the acceptance number of the appropriate sampling plan.

**6 Food additives**

Food additives when used shall be in accordance with the regulations established by the Bureau of Food and Drugs (BFAD) (Bureau Circular No. 016 s.2006. Updated List of Food Additives) and/or the Codex Alimentarius Commission.

The following food additives listed in, but not limited to, table 1, may be used for the manufacture of fried corn snacks.

**Table 1 – Food Additives for Fried Corn Snacks\***  
(BFAD B.C. No.016 s. 2006. Updated List of Food Additives)

<b>Food additive</b>	<b>Maximum level</b>
<b>Antioxidants</b>	
Ascorbic acid	GMP
Ascorbyl esters	200mg/kg
BHA	200mg/kg
Propyl gallate	200mg/kg
Phosphates	1300mg/kg
Sorbates	1000mg/kg
Tocopherols	200mg/kg
<b>Humectants</b>	
Any permissible humectants agents as specified by BFAD	GMP
<b>Processing aid</b>	
Calcium carbonate	GMP
Sodium hydroxide	
<b>Sweetening agent</b>	
Any permissible sweetening agents as specified by BFAD	GMP
* Based on the Food Category System: 15.1 Snacks – potato, cereal, flour or starch based (from roots and tubers, pulses and legumes)	

**7 Hygiene**

**7.1** 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. 4-2003) and/or the BFAD A.O. No. 153 s. 2004 - Guidelines, Current Good Manufacturing Practices in Manufacturing, Packing, Repacking or Holding Food and processed according to the Recommended Code of Practice for the Processing and Handling of Fried Corn Snacks (PNS/BFAD No. 22:2009).

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

- shall be free from filth that may pose a hazard to health;-
- shall be free from parasites which may represent a hazard to health;
- shall not contain any substance originating from microorganisms in amounts which may represent a hazard to health;
- shall be free from microorganisms capable of development under normal conditions of storage; and
- shall be free from container integrity defects which may compromise the hermetic seal.

## **8 Labeling**

**8.1** Each container shall be labeled and marked with the following information in accordance with BFAD's Labelling Regulation:

**8.1.1** The name of the product shall be "Fried Corn Snacks". It may have additional descriptors. Ex. Chichacorn/Cornick in Cheese Flavor, Chichacorn/Cornick in Garlic Flavor, Chichacorn/Cornick in Chili Flavor, Chichacorn/Cornick in "Adobo" Flavor;

**8.1.2** The complete list of ingredients and food additives used in the preparation of the product in descending order of proportion;

**8.1.3** The net quantity of content by weight in the metric system. Other systems of measurement required by importing countries shall appear in parenthesis after the metric system unit;

**8.1.4** The name and address of the manufacturer, packer and/or distributor of the food;

**8.1.5** Open date marking;

The words "Best/Consume Before" indicating end of period at which the product shall retain its optimum quality attributes at defined storage conditions.

**8.1.6** Lot or code number identifying product lot;

**8.1.7** The words "Product of the Philippines", or the country of origin if imported; and

**8.1.8** Additional requirements.

A pictorial representation on the label should not mislead the consumer with respect to the product so illustrated.

## **8.2 Nutrition labeling**

Nutrition labeling shall conform to the established regulations of BFAD and or authority for this commodity.



## **9 Methods of analysis and sampling**

### **9.1 Determination of water activity**

According to the AOAC Official Methods of Analysis, 18<sup>th</sup> ed., 2005. Method No. 978.18.

### **9.2 Determination of moisture content (Vacuum oven method)**

According to the AOAC Official Methods of Analysis, 18<sup>th</sup> ed., 2005. Method No. 934.06.

### **9.3 Determination of fat content**

According to the AOAC Official Methods of Analysis, 18<sup>th</sup> ed., 2005. Method No. 963.15.

### **9.4 Determination of free fatty acid content**

According to the AOAC Official Methods of Analysis, 18<sup>th</sup> ed., 2005. Method No. 940.28.

### **9.5 Determination of peroxide value**

According to the AOAC Official Methods of Analysis, 18<sup>th</sup> ed., 2005. Method No. 965.33.

### **9.6 Determination of aflatoxin content (HPLC)**

According to the AOAC Official Methods of Analysis, 18<sup>th</sup> ed., 2005. Method No. 991.31.

### **9.7 Method of sampling**

Sampling shall be in accordance with the FAO/WHO Codex Alimentarius Sampling Plans for Prepackaged Foods - CAC/RM 42-1969, Codex Alimentarius Volume 13, 1994.

## 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.

A.O. No. 153 s. 2004. **Guidelines, Current Good Manufacturing Practice in Manufacturing, Packing, Repacking or Holding Food**. Bureau of Food and Drugs. Department of Health. Alabang, Muntinlupa City, Philippines.

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B.C. No.016 s. 2006. **Updated List of Food Additives**. Bureau of Food and Drugs. Department of Health. Alabang, Muntinlupa City, Philippines.

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Philippine National Standards No. 991:1993. **Agricultural and Other Food Products – Bottled Drinking Water Specifications**. Bureau of Product Standards. Department of Trade and Industry. Makati City, Philippines.

PNS/BAFPS 10:2004. **Philippine National Standard for Grains-Corn – Grading and Classification**. Bureau of Agriculture and Fisheries Product Standards. Department of Agriculture. Diliman, Quezon City, Philippines.

R.A. 3720. **Food, Drugs and Cosmetic Act**. Bureau of Food and Drugs. Department of Health. Alabang, Muntinlupa City, Philippines.

**FORMULATING BODY**  
**Development of Standards for Selected Ethnic Food Products – Phase I**  
**Standards for Fried Corn Snacks (Chichacorn)**

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