

# PHILIPPINE NATIONAL STANDARD

PNS/BAFPS 128:2013  
ICS 67.120.30

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Dried sea cucumber



**BUREAU OF PRODUCT STANDARDS**

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**Foreword**

The Philippine National Standard (PNS) for Dried sea cucumber (PNS/BAFPS 128:2013) was developed by the Technical Working Group (TWG) on the Development of PNS for Sea Cucumber created by the Bureau of Agriculture and Fisheries Product Standards (BAFPS).

The TWG is composed of members representing the Bureau of Fisheries and Aquatic Resources – National Fisheries Research and Development Institute (BFAR-NFRDI), Department of Science and Technology – Industrial Technology Development Institute (DOST-ITDI), Department of Science and Technology – Philippine Council for Agriculture, Aquatic and National Resources Research and Development (DOST-PCAARRD), University of the Philippines Diliman – Marine Science Institute (UPD-MSI), University of the Philippines Visayas – College of Fisheries and Ocean Sciences (UPV-CFOS), and University of the Philippines Los Baños – College of Engineering and Agro-Industrial Technology (UPLB-CEAT) with BAFPS as Secretariat.

The formulation of this standard is to address the common problems of the local industry on post-harvest and processing of dried sea cucumber that include high moisture content, inconsistent quality, poor packaging, and poor hygiene and sanitation. This standard is composite of the recommendations made by the TWG and the relevant stakeholders who participated in the four (4) public consultations conducted in Zamboanga City (Region 9), Palawan (Region 4B), Cebu City (Region 7) and Quezon City (NCR) in collaboration with the respective Regional Fisheries Offices of BFAR and Regional Field Units of the Department of Agriculture.

This PNS for Dried sea cucumber aims to provide a common understanding on the scope of the standard, product description, essential composition and quality factors, food additives, hygiene and handling, labeling requirements, methods of sampling, examination and analysis, definition of defectives, and the requirements for product lot acceptance.

**Dried sea cucumber**

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**1 Scope**

This standard prescribes safety and quality requirements of dried sea cucumber, intended for further processing.

The species of sea cucumber covered in this standard are presented, but not limited to the species listed, in Annex A.

**2 References**

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

**3 Definition of terms**

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

**3.1****cleaning**

removal of gut contents, dirt (e.g. sand and mud) and other extraneous matter adhering to the raw material through washing with clean water

**3.2****clean water**

water from any source where harmful microbiological contamination, substances and/or toxic plankton are not present in such quantities that may affect the health quality of fish, shellfish and their products

**3.3****container**

any packaging of food for delivery as a single item, whether by completely or partially enclosing the food and includes wrappers. A container may enclose several units or types of packages when such is offered to the consumer

**3.4****contaminant**

any biological or chemical agent, foreign matter, or other substances not intentionally added to food that may compromise food safety or suitability

**3.5****drying**

process in which the moisture content is reduced using appropriate drying methods, which may include sun-drying, smoke-drying or drying under controlled condition, to the required level as specified in table 1

**3.6**

**food additive**

any substance not normally consumed as a food by itself and not normally used as a typical ingredient of the food, whether or not it has nutritive value, the intentional addition of which to food for a technological (including organoleptic) purpose in the manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such food results, or may be reasonably expected to result, (directly or indirectly) in it or its by-products becoming a component of or otherwise affecting the characteristics of such foods. The term does not include substances added to food for maintaining or improving nutritional qualities

**3.7**

**good manufacturing practices (GMP)**

a quality assurance system aimed at ensuring that products are consistently manufactured, packed, repacked or held to a quality appropriate for the intended use. It is thus concerned with both manufacturing and quality control procedures

**3.8**

**hazard**

a biological, chemical or physical agent in, or condition of, food with the potential to cause an adverse health effect

**3.9**

**ingredient**

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**

any tag, brand, mark, pictorial, or other descriptive matter, written, printed, stenciled, marked, embossed or impressed on, or attached to, a container of food

**3.11**

**labeling**

includes any written, printed or graphic matter that is present on the label, accompanies the food, or is displayed near the food, including that for the purpose of promoting its sale or disposal

**3.12**

**lot**

a definitive quantity of a commodity produced essentially under the same conditions

**3.13**

**packaging**

the process of packing that is part of the production cycle applied to bulk product to obtain the finished product. Any material, including printed 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

### **3.14**

#### **retail**

means an operation that stores, prepares, packs, serves, or otherwise provides fish, shellfish and their products directly to the consumer, who prepares them for human consumption. This may be free standing seafood markets, seafood sections in groceries or department stores. Products sold may be packaged chilled or frozen and/or full service

### **3.15**

#### **sea cucumber**

any echinoderm of the Class Holothuroidea, generally having soft elongated body and bearing clusters of tentacles at the oral end

## **4 Product description**

### **4.1 Product definition**

The product is a dried sea cucumber which is stone hard, free from dirt, sand, and other foreign matter, packed and labeled in accordance to clause 9.

### **4.2 Process definition**

Dried sea cucumber is generally processed from live or fresh raw material that may include the following:

- Cleaning;
- Cooking in clean water with or without salt;
- Removing of spicules;
- Soaking in water with or without salt;
- Drying; and
- Packaging.

## **5 Essential composition and quality factors**

### **5.1 Basic ingredients**

#### **5.1.1 Raw material (sea cucumber)**

Only live or fresh sea cucumber weighing not less than 320 grams shall be used for processing. Fresh sea cucumber may be chilled or frozen.

#### **5.1.2 Water**

Water for washing, cleaning, cooking or soaking shall comply with the Codex requirements for clean water (CAC/RCP 52-2003 – Code of Practice for Fish and Fishery Products).

**5.2 Optional ingredients**

All other ingredients used shall be of food grade quality and conform to all applicable standards.

**5.3 Final product**

**5.3.1** The final product shall conform to the physico-chemical requirements shown in table 1:

**Table 1 – Physico-chemical requirements of dried sea cucumber**

Characteristic	Requirement
Moisture content, % by weight, max	15
Sodium chloride, % by weigh, max	2.5
Acid insoluble ash, % by weight, max	2.5
Length (cm), min	5

**5.3.2** The final product shall exhibit the following sensory properties:

- i) color and shape characteristic of the species used;
- ii) clean and free from visible dirt and other foreign matter; and
- iii) stone hard (i.e. cannot be bent or broken by hand).

**6 Food additives**

Food additives when used shall be in accordance with the regulations as prescribed by the Food and Drug Administration (FDA) and/or based on the Codex General Standard for Food Additives (CODEX STAN 192-1995).

**7 Contaminants**

The dried sea cucumber products shall comply with the maximum level of contaminants as specified in the Codex General Standard for Contamination and Toxins in Food and Feed (CODEX/STAN 193-1995).

**8 Hygiene and handling**

The dried sea cucumber products shall be prepared and processed under hygienic conditions in accordance with the Department of Health’s Revised Guidelines on Current Good Manufacturing Practice in Manufacturing, Packing, Repacking, or Holding Food (DOH Administrative Order No. 153 s. 2004), and its future amendments, and the following Codex Recommended Codes of Practice (CAC/RCP):

- (i) General Principles of Food Hygiene (CAC/RCP 1-1969); and
- (ii) Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003).

## **9 Packaging and labeling**

### **9.1 Packaging**

The product shall be packed in appropriate food grade containers. The individual retail or bulk container shall contain only one species.

### **9.2 Labeling**

The product shall be labeled according to the provisions of the Codex General Standard for the Labeling of Prepackaged Foods (CODEX STAN 1-1985) and the Department of Health's Rules and Regulations Governing the Labeling of Prepackaged Food Products Distributed in the Philippines (DOH Administrative Order No. 88-B s. 1984), and its future amendments.

#### **9.2.1 Retail package/container**

Each retail product package shall be labeled and marked with the following information:

- (i) The name of the product. The name of the product shall be "Dried Sea Cucumber" and the corresponding English or common/local name in parenthesis [e.g. Dried Sea Cucumber (Sandfish) or Dried Sea Cucumber (*Putian*) etc.]. The products may be called by other common/local names provided that such names are accepted in the country of distribution (e.g. trepang or beche-de-mer);
- (ii) The net content by weight in the metric system (grams or kilograms) and/or number of pieces. The net weight based on other systems of measurement required by importing countries shall appear in parenthesis after the metric net weight;
- (iii) The label shall state that the product must be stored under conditions to maintain the best quality during transport, storage and distribution (e.g. "store in a cool dry place");
- (iv) The words "Best/Consume Before/Use by Date" 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;
- (v) The name and address of either the manufacturer, packer, distributor, importer, exporter or vendor;
- (vi) The pictorial presentation (optional). Pictorial presentation of the product on the label should not mislead the consumer with respect to the product so illustrated;
- (vii) The lot identification code/number; and
- (viii) The words "Product of the Philippines" or the country of origin if imported.

### **9.2.2 Non-retail container**

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

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

## **10 Methods of sampling, examination and analysis**

### **10.1 Method of sampling**

Sampling of lots for examination of the final product shall be in accordance with the General Guidelines on Sampling (CAC/GL 50-2004). A sample unit is the individually packed product or a 1kg portion from bulk containers.

### **10.2 Method of sensory and physical examinations**

Samples taken for sensory and physical examination shall be assessed by persons trained in such examination, using procedures elaborated in Section 10.3 and Guidelines for the Sensory Evaluation of Fish and Shellfish in Laboratories (CAC/GL 31-1999).

### **10.3 Methods of analysis**

#### **10.3.1 Determination of acid insoluble ash**

According to the AOAC Official Method 975.12 or other validated methods that provide equivalent sensitivity, reproducibility and reliability.

#### **10.3.2 Determination of moisture content**

According to the AOAC Official Method 950.46 or other validated methods that provide equivalent sensitivity, reproducibility and reliability.

#### **10.3.3 Determination of sodium chloride (NaCl)**

According to the AOAC Official Method 937.09 or other validated methods that provide equivalent sensitivity, reproducibility and reliability.

## **11 Definition of defectives**

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

### **11.1 Foreign matter**

Foreign matter is any matter/object present in the sample unit which is not derived from dried sea cucumber product (excluding packing material), which is readily recognized even without magnification. It may be present at a level determined by any method including magnification indicating non-compliance with good manufacturing and sanitation practices, but does not pose any threat to human health.



## **11.2 Appearance**

### **11.2.1 Presence of the following:**

- i) molds;
- ii) salt crystals;
- iii) chalky deposits and extraneous matter (if appropriate);
- iv) cracks and bruises; and
- v) scorched or burnt surface.

### **11.2.2 Deformed shape (e.g. bent, twisted, flattened).**

## **11.3 Odor**

Objectionable odor indicative of decomposition.

## **11.4 Texture**

Case hardened texture or the presence of hard outer layer but moist inner layer.

## **12 Lot of acceptance**

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

- (i) the total number of defective sample units as classified according to clause 11 does not exceed the acceptance number (c) of the appropriate sampling plan (AQL-6.5), in annex B;
- (ii) the average net weight of all sample units is not less than the declared weight, provided there is no unreasonable shortage in any individual container; and
- (iii) the essential composition and quality factors, food additives, contaminants, hygiene and handling, and labeling requirements of clauses 5, 6, 7, 8 and 9.2 are met.

## Annex A

## Common commercial sea cucumber species in the Philippines

Scientific name	Local/Common name	English name
<b>A. High value species*</b>		
1. <i>Holothuria fuscogilva</i>	<i>Susuan</i>	White teatfish
2. <i>H. whitmaei</i>	<i>Bakungan, Kagisan, Sus-an</i>	Black teatfish
3. <i>H. scabra</i>	<i>Putian, Cortido, Kagisan</i>	Sandfish
4. <i>H. nobilis</i>	<i>Susuan, Kiskisan, South hud</i>	Black teatfish
5. <i>H. lessoni (versicolor)</i>	-	Golden sandfish
6. <i>Stichopus horrens</i>	<i>Hanginan</i>	Curryfish
7. <i>Neocucumis proteus</i>	<i>Bola-bola</i>	-
<b>B. Medium value species*</b>		
8. <i>Thelenota anax</i>	<i>Legs, Paag daga</i>	Amberfish
9. <i>H. spinifera</i>	-	-
10. <i>S. hermanii</i>	<i>Hanginan</i>	Curryfish
11. <i>S. chloronotus</i>	<i>Kwatro-kantos (no size classification)</i>	Greenfish
12. <i>S. variegatus</i>	<i>Gadul, daremusak</i>	-
13. <i>T. ananas</i>	<i>Tinikan, Pinya-pinya</i>	Prickly redfish
14. <i>Actinopyga echinites</i>	<i>Khaki</i>	Deep-water redfish
15. <i>A. lecanora</i>	<i>Buli-buli, Monang</i>	Stonefish
16. <i>A. milliaris</i>	<i>Khaki</i>	Blackfish
17. <i>A. mauritiana</i>	<i>Bakungan, Monang</i>	Speckled sea cucumber, Surf redfish
<b>C. Low value species*</b>		
18. <i>H. atra</i>	<i>Black beauty</i>	Lollyfish
19. <i>H. fuscopunctata</i>	<i>Sapatos</i>	Elephant trunkfish
20. <i>S. vastus</i>	-	Brown curryfish
21. <i>H. notabilis</i>	-	-
22. <i>H. edulis</i>	<i>Hotdog</i>	Pinkfish
23. <i>H. rigida</i>	<i>Batunan, Bat-onan</i>	Rigid sea cucumber
24. <i>H. pulla</i>	<i>Patola red</i>	-
25. <i>T. rubralineata</i>	-	Red-striped sea cucumber
26. <i>H. leucospilota</i>	<i>Balat-uwak</i>	White threads fish
27. <i>H. coluber</i>	<i>Patola white, Tambor, Batuwak, Balat-aso</i>	Snakefish
28. <i>H. hilla</i>	<i>Rotong, Batuli</i>	-
29. <i>H. impatiens</i>	<i>Sunlot</i>	Impatient sea cucumber
30. <i>H. fuscocinerea</i>	<i>Labuyo, Puyos</i>	-
31. <i>Bohadschia argus</i>	<i>Matang-itik</i>	Leopard fish
32. <i>B. vitiensis</i>	<i>Lawayan-taba</i>	Brown sandfish
33. <i>B. marmorata</i>	<i>Lawayan</i>	Chalky sea cucumber
34. <i>B. similis</i>	<i>Lawayan</i>	Brown-spotted sea cucumber
35. <i>Personothuria graeffei</i>	<i>Flower</i>	Black-spotted sea cucumber

\*Species categorization (as to high, medium, low value) was based from FAO Fisheries and Aquaculture Technical Report 2010. Relative value of species may vary depending on the size, market demand, locality and supply.

**Annex B**

**Sampling plans**

**Sampling plan 1  
(Inspection level I, AQL = 6.5)**

**Net weight is equal to or less than 1 kg (2.2 lb)**

<b>Lot size (N)</b>	<b>Sample size (n)</b>	<b>Acceptance number</b>
4,800 or less	6	1
4,801 – 24,000	13	2
24,001 – 48,000	21	3
48,001 – 84,000	29	4
84,001 – 144,000	38	5
144,001 – 240,000	48	6
more than 240,000	60	7

**Net weight is greater than 1 kg (2.2 lb) but not more than 4.5 kg (10 lb)**

<b>Lot size (N)</b>	<b>Sample size (n)</b>	<b>Acceptance number</b>
2,400 or less	6	1
2,401 – 15,000	13	2
15,001 – 24,000	21	3
24,001 – 42,000	29	4
42,001 – 72,000	38	5
72,001 – 120,000	48	6
more than 120,000	60	7

**Net weight is greater than 4.5 kg (10 lb)**

<b>Lot size (N)</b>	<b>Sample size (n)</b>	<b>Acceptance number</b>
600 or less	6	1
601 – 2,000	13	2
24,001 – 7,200	21	3
7,201 – 15,000	29	4
15,001 – 24,000	38	5
24,001 – 42,000	48	6
more than 42,000	60	7

Annex B (Cont...)

Sampling plans

Sampling plan 2  
(Inspection level II, AQL = 6.5)

Net weight is equal to or less than 1 kg (2.2 lb)

Lot size (N)	Sample size (n)	Acceptance number
4,800 or less	13	2
4,801 – 24,000	21	3
24,001 – 48,000	29	4
48,001 – 84,000	38	5
84,001 – 144,000	48	6
144,001 – 240,000	60	7
more than 240,000	72	8

Net weight is greater than 1 kg (2.2 lb) but not more than 4.5 kg (10 lb)

Lot size (N)	Sample size (n)	Acceptance number
2,400 or less	13	2
2,401 – 15,000	21	3
15,001 – 24,000	29	4
24,001 – 42,000	38	5
42,001 – 72,000	48	6
72,001 – 120,000	60	7
more than 120,000	72	8

Net weight is greater than 4.5 kg (10 lb)

Lot size (N)	Sample size (n)	Acceptance number
600 or less	13	2
601 – 2,000	21	3
24,001 – 7,200	29	4
7,201 – 15,000	38	5
15,001 – 24,000	48	6
24,001 – 42,000	60	7
more than 42,000	72	8

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