



Testing Requirements for Fish and Fishery Products

Forum on Standardization, Productivity, Innovation and Certification
for Enterprises (SPICE) in Food Processing in Western Visayas
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Introduction

Processors of fishery products are governed by conditions imposed in compliance with the requirements laid down in relevant National laws and other international Regulations depending on country of export:

☛ **National Legislation**

- Fisheries Administrative Orders (FAO)/ Fisheries Office Order (FOO)
- Philippine National Standards (PNS)
- Food and Drug Authority (FDA)

☛ **Importing Country Legislation**

- European Union, US FDA, Australian Quarantine Import Service (AQIS)

☛ **International Organizations**

- Codex Alimentarius Commission (CAC)
- International Commission on Microbiological Specifications for Foods (ICMSF)
- World Trade Organization (WTO)

***Philippine guidelines on food safety in fishery products**

- **FAO No. 209, series of 2001** – Guideline on the Production, Harvesting, Handling and Transportation of shellfish for Implementation of the local Government
- **FAO No. 210, series of 2001** – Rules and Regulations on the Exportation of fresh, Chilled and Frozen Fish and Fishery Products
- **FAO No. 212, series of 2001** – Guideline on the implementation of HACCP System
- **FAO No. 213, series of 2001** – Establishment of BFAR's Quality Control Laboratory and Collection of Fees and Charges for Examination Services

***Full text available at www.bfar.da.gov.ph**

- **FAO No. 214, series of 2001** – Code of Practice for Aquaculture, with special emphasis on
 - Section 6 – Use of Drugs, Chemicals, Potentially Toxic Pesticides / Fertilizers
 - Section 9 – Feeds, Feed use and Management
 - Section 10 – Fish Health Management
- **FAO No. 227, series of 2008** – Rules and Regulations Governing the Export of Fish and Aquatic Products to EU Member Countries
- **FAO No. 228, series of 2008** – Rules governing the organization and implementation of official controls on fishery and aquatic products intended for export to the EU market for human consumption
- **FAO No. 235, series of 2010** – Safety and Quality Control Standards for PSP
- **RA 10611** – Philippine Food Safety Act of 2013
- **BFAR AC 251 S-2014** – Traceability System for Fish and Fishery Products

***Full text available at www.bfar.da.gov.ph**

The PNS 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
- methods of sampling
- requirements for product lot acceptance
- examination and analyses

**PHILIPPINE NATIONAL
STANDARD**

PNS/BAFPS 70:2008
ICS 67.120.30

Quick frozen shrimps or prawns

**PHILIPPINE NATIONAL
STANDARD**

PNS/BAFPS 68:2008
ICS 67.120.30

Dried danggit

**PHILIPPINE NATIONAL
STANDARD**

PNS/BAFPS 66:2008
ICS 67.120.30

Frozen milkfish

**PHILIPPINE NATIONAL
STANDARD**

PNS/BAFPS 73:2009
ICS 67.120.30

Live, chilled/frozen grouper

**PHILIPPINE NATIONAL
STANDARD**

PNS/BAFPS 90:2011
ICS 67.120.30

Quick frozen fish fillets

**PHILIPPINE NATIONAL
STANDARD**

PNS/BFAD 04:2006
ICS 67.120.30

Ethnic food products – Dried, salted fish – Specification

**PHILIPPINE NATIONAL
STANDARD**

PNS/FDA 26:2010
ICS 67.120.30

Smoked fish - Specification

Microbiological

FAO No. 210 Section 2 Series of 2001

Test	Standard Limit
Aerobic Plate Count (APC)	500,000 cfu/g
<i>Escherichia coli</i>	11 MPN/g
<i>Salmonella</i>	absent in 25 g
<i>Shigella</i>	absent
<i>Vibrio cholera</i>	absent
<i>Staphylococcus aureus</i>	1000/g
Anaerobic Count (incubation at 37 deg Celsius for 10 days)	negative in 26 g sample

Heavy Metals

Contaminant	Product	Limit (ppm)	Reference
Mercury (Hg)	All fish except Predatory species (i.e. tuna, sharks)	0.5 1.0	FAO 210 series of 2001
Cadmium (Cd)	All fish except	0.5	FAO 210 series of 2001
	Tuna, sardines, Anchovy, bonito, eel, Sardinops, horse Mackerel, scad, gray mullet	1.0	
	Bivalve mollusc (i.e. Clams, mussels)	1.0	Codex 2006
	Oysters and scallops	2.0	
Lead (Pb)	All fish	0.5	FAO 210 series of 2001
Arsenic(As)	Crustaceans / fish	2.0	EU 1881 / 2006
	Shellfish / seaweeds, Edible kelp	1.0	
Tin (Sn)	Canned food	200 ppm	

Marine biotoxins

Ciguatoxin	negative
Paralytic shellfish toxin	60 micrograms/100g

Additives

Sulfates	150 mg/kg
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Index of Freshness

Histamine	50 ppm (US-FDA) 100 ppm (EU and Canada) 200 ppm (FAO 210)
Trimethylamine(TMA-N)	5 – 10mg N/100g
Total Volatile Base (TVB-N)	20 – 30 mg N/100g
pH	6.2 – 6.9 Good Quality; 5.2 and below sour or putrid
Water activity	0.6-0.7 for heavily salted fish
Moisture Content	66-84% Fresh fish 81% molluscs

Pharmacologically Active Substances for which Maximum Residue Limits have been Fixed

Pharmacologically Active Substances	Animal Species-	MRLS	Target Tissue
Quinolones Oxolonic acid Flumequine Saraflaxacin	(finfish) salmonidae salmonidae	300µg/Kg 150µg/Kg 30 µg/Kg	Muscle & skin in natural proportions -do- -do-
Florfenicol & related samples Thiamphenicol Florfenicol	Finfish fish	50µg/Kg 1000µg/Kg g	-do- -do-

EC 2377 / 1990

Pharmacologically Active Substances	Animal Species-	MRLS	Target Tissue
Tetracyclines Chlortetracyclines Oxytetracycline Tetracycline	All food producing species	100µg/Kg 300µg/Kg 100µg/Kg 300µg/Kg 100µg/Kg 300µg/Kg	Muscle Liver Muscle Liver Muscle Liver
Penicillins Amoxicillin Ampicillin Benzyl penicillin Chloroxillin	All food producing species	50µg/Kg 50µg/Kg 50µg/Kg 300µg/Kg	Muscle -do- -do- -do-

For Aquaculture fishery products

Banned Antibiotic residues

*Chloramphenicol	=	Negative; 0.3 ppb MRPL
*Nitrofurans	=	Negative; 1 ppb MRPL

Dyes

*Malachite green	=	Negative; 2 ppb MRPL
*Leucomalachite green	=	Negative; 2 ppb MRPL

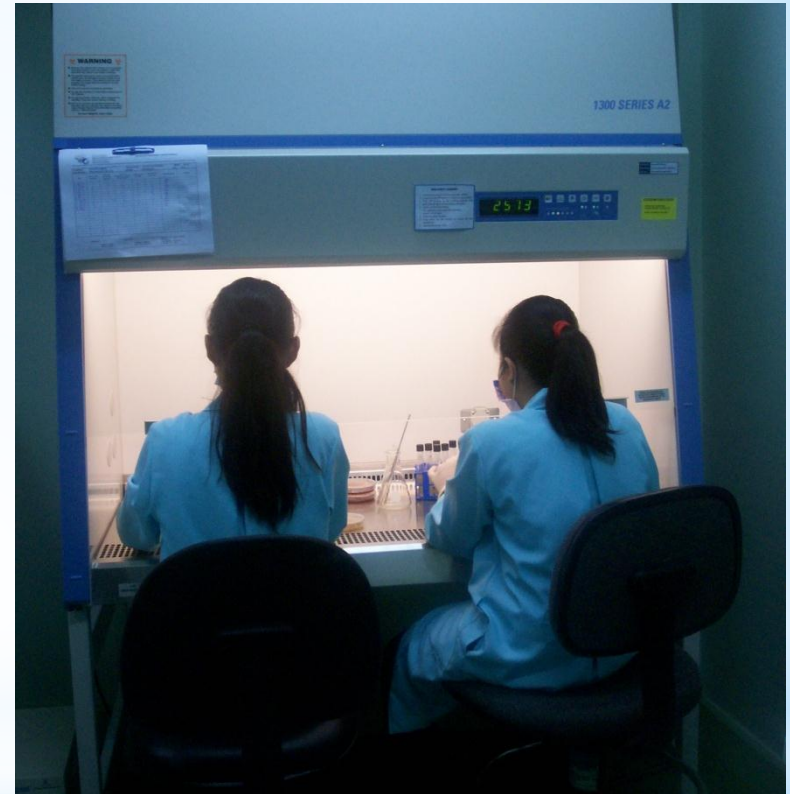
*ppb – parts per billion

*MRPL – Minimum Reportable Performance Limit for test method



BFAR Regional Office 6

Facilities



Microbiological Testing Laboratory

Facilities



Cold Vapor/Graphite Furnace/Flame AAS for Heavy Metals Analysis

Facilities



PCR Lab for Disease Detection in Shrimp

Facilities



Fishery Products and Water Quality
Testing Laboratory

Facilities



HPLC / MS-MS Laboratory
for Residue Analysis

Laboratory Services and Testing Fees

Laboratory Services	Method	Minimum Required Sample Quantity	Testing Fee (PhP)
1. Chemical Analyses for Water Quality			
<input type="checkbox"/> Ammonia	Colorimetric	250 ml	180.00
<input type="checkbox"/> Dissolved Oxygen	DO meter	250 ml	150.00
<input type="checkbox"/> Nitrite	Colorimetric	250 ml	180.00
<input type="checkbox"/> pH	pH meter	250 ml	30.00
<input type="checkbox"/> Salinity	Refractometer	250 ml	30.00
<input type="checkbox"/> Total Alkalinity	Titrimetric	250 ml	100.00
2. Bacteriological Analyses for Water Quality*			
<input type="checkbox"/> E. coli	MPN	250 ml	350.00
<input type="checkbox"/> Fecal Coliform Count	MPN	250 ml	250.00
<input type="checkbox"/> Luminous Bacteria Count	Plate Count	250 ml	100.00
<input type="checkbox"/> Total Bacteria Count	Plate Count	250 ml	200.00
<input type="checkbox"/> Total Coliform Count	MPN	250 ml	250.00
*Put samples in sterile container and keep at about 4°C during transport to the laboratory			
3. Molecular Disease Diagnosis*			
<input type="checkbox"/> White Spot Syndrome Virus (WSSV)	PCR		600.00
*Submit samples according to the following quantities:			
Adult/juvenile shrimp		15-20 pcs	
Broodstock eyestalk/pleopod		100-200 mg	
Postlarvae (PL)		150-200 pcs	

Laboratory Services	Method	Minimum Sample Quantity	Testing Fee
5. Antibiotic Residue Analysis			
<input type="checkbox"/> Chloramphenicol (CAP)	ELISA	250 g (processed) 1 kg (raw material)	1000.00
<input type="checkbox"/> Nitrofurazone (AMOZ)	ELISA	-same	1000.00
<input type="checkbox"/> Nitrofurazone (AOZ)	ELISA	-same	1000.00
6. Scombrotoxin			
<input type="checkbox"/> Histamine	Fluorometric	250 grams	450.00
7. Physico-chemical analysis for fish and fishery products			
<input type="checkbox"/> Formaldehyde	Chromotropic Acid Method	200 grams	250.00
<input type="checkbox"/> Moisture	Gravimetric	200 grams	85.00
<input type="checkbox"/> Total Ash	Gravimetric	200 grams	200.00
<input type="checkbox"/> Total Volatile Base	Conway Dish Titration Method	250 grams	120.00
<input type="checkbox"/> Trimethylamine	Conway Dish Titration Method	250 grams	120.00
8. Bacteriological analysis for fish and fishery products*			
<input type="checkbox"/> Aerobic Plate Count (APC)	Plate Count	250 grams	200.00
<input type="checkbox"/> E. coli	MPN	250 grams	350.00
<input type="checkbox"/> Fecal Coliform Count	MPN	250 grams	250.00
<input type="checkbox"/> Salmonella	Plate Count	250 grams	400.00
<input type="checkbox"/> Shigella	Plate Count	250 grams	400.00
<input type="checkbox"/> Staphylococcus aureus	Plate Count	250 grams	300.00
<input type="checkbox"/> Total Coliform Count	MPN	250 grams	250.00
<input type="checkbox"/> Yeast/ Mold Count	Plate Count	250 grams	250.00
*300-500 grams for multiple tests of one (1) sample			
9. Analysis for Heavy Metals in Fishery Products and Water Samples			
<input type="checkbox"/> Arsenic (As)	GF-AAS / F-AAS	250 grams	1200.00
<input type="checkbox"/> Cadmium (Cd)	GF-AAS / F-AAS	250 grams	1200.00
<input type="checkbox"/> Copper (Cu)	GF-AAS / F-AAS	250 grams	1200.00
<input type="checkbox"/> Lead (Pb)	GF-AAS / F-AAS	250 grams	1200.00
<input type="checkbox"/> Mercury (Hg)	GF-AAS / F-AAS	250 grams	1200.00

BFAR RFL 6 Services



Sample Receiving Area

For Inquiries:

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**If you think you can do it,
that's Confidence;
If you do it,
that's Competence.**

MORRIS CODE



Thank you!