



**THAI AGRICULTURAL STANDARD**

**TAS 7005-2005**

# **CEPHALOPODS**

**National Bureau of Agricultural Commodity and Food Standards  
Ministry of Agriculture and Cooperatives**

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**National Bureau of Agricultural Commodity and Food Standards**

**Ministry of Agriculture and Cooperatives**

**50 Phaholyothin Road, Ladyao, Chatuchak, Bangkok 10900**

**Telephone (662) 561 2277 [www.acfs.go.th](http://www.acfs.go.th)**

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**NOTIFICATION OF THE NATIONAL COMMITTEE ON  
AGRICULTURAL COMMODITY AND FOOD STANDARDS  
SUBJECT: THAI AGRICULTURAL COMMODITY AND FOOD STANDARD:  
CEPHALOPODS  
B.E. 2548 (2005)**

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By virtue of the Cabinet Resolution on Appointment and Authorization of the National Committee on Agricultural Commodity and Food Standards, the Notification on Thai Agricultural Commodity and Food Standards entitled Cephalopods is hereby issued as voluntary standard, the details of which are attached herewith.

Notified on 30 June B.E. 2548 (2005)

Khunying Sudarat Keyuraphan

Minister of Agriculture and Cooperatives

Chairperson of the National Committee on Agricultural Commodity and Food Standards

## THAI AGRICULTURAL STANDARD CEPHALOPODS

### 1 SCOPE

This standard applies to fresh cephalopods of the following families: Loliginidae, Sepiidae and Octopodidae for direct consumption or further processing.

### 2 DEFINITIONS

For the purpose of this standard:

2.1 **Cephalopods** mean aquatic animals of the Cephalopods class; common name as cephalopods or ink fish; commercial name as squid, soft cuttlefish or big fin reef squid, cuttlefish and octopus.

2.2 **Fresh cephalopods** means live cephalopods while catching or chilled or frozen on board after captures; with or without passing cutting process.

2.3 **Contaminants** mean chemical substances contaminated in the product, which may occur at captured site, processing location, transportation, storage or by other causes.

### 3 TYPES AND STYLES

3.1 Fresh cephalopods consist of four species including *Loligo* spp. (squid), *Sepistenthis lessoniana* (soft cuttlefish), *Sepia* spp. (cuttlefish) and *Octopus* spp.

3.2 Each species of fresh cephalopods includes eight product types as the followings:

- (1) Whole round cephalopods: cephalopods with complete organs in nature
- (2) Whole cleaned cephalopods: whole cephalopods without skin, eyes, beak and internal organs
- (3) Tube cephalopods: cephalopods without skin, gut, head and shell or chitin; with or without wing removal
- (4) Fillet cephalopods: cephalopods as described in (3) with or without wing removal; with a cut along the body
- (5) Head of cephalopods; head section with tentacles without eyes, beak and ink sac; for cephalopods in the family of *Loliginidae* and *Sepiidae* (squid, cuttlefish and soft cuttlefish) may be called cephalopods tentacles
- (6) Cephalopods wing; outer organs on both sides of cephalopods body
- (7) Octopus ink off; octopus without only ink sac
- (8) Octopus gutted; octopus without internal organs; with or without removed eyes, beak.

## 4 QUALITY

### 4.1 Minimum requirements

All types and styles of fresh cephalopods shall have the quality of the following characteristics:

- (1) Fresh cephalopods with complete characteristics of its types and styles
- (2) Natural color
- (3) No obvious defects
- (4) Slightly fishy smell but no foul or objectionable odor
- (5) Free from foreign matter caused by improper hygiene practices

**Remark: (1) - (5) examined by visual inspection**

### 4.2 Classification and Tolerances

#### 4.2.1 Classification

Cephalopods in this standard are classified in two classes defined below:

##### 4.2.1.1 Class I

Cephalopods in this class shall be of good quality. Every characteristic shall comply with grading criteria in Annex A with the score not less than grade level three.

##### 4.2.1.2 Class II

Cephalopods in this class shall be of good quality, but freshness is not as the good as first class quality. Every characteristic shall comply with grading criteria in Annex A with the score not less than grade level two.

#### 4.2.2 Tolerances

Tolerance in respect of quality shall be allowed in each package for cephalopods.

The products that are not complied with class I but the score of each characteristic not lower than grade level two are allowed not more than 5% of total weight.

## 5 SIZING

If there is no specific deal between buyers and suppliers, cephalopods sizes are defined as follows:

### 5.1 Squid

Squid sizes of different types are defined in Table 1:

**Table 1: Size of whole round, whole cleaned, tube and head**

whole round		whole cleaned		tube		head
No./kg	Length/Squid in centimeter (inch)	No./kg	Length/ Squid in centimeter (inch)	No./kg	Length/ Squid in centimeter (inch)	No./kg
<5	> 30 (>12)	< 5	> 30 (> 12)	< 5	> 30 (> 12)	< 10
5 - 10	> 20 - 30 (> 8 - 12)	5 - 10	> 20 - 30 (>8 - 12)	5 - 10	> 20 - 30 (>8 - 12)	10 - 20
>10 - 20	>12.5 - 20 (>5 - 8)	> 10 - 20	>12.5 - 20 (>5 - 8)	> 10 - 20	>12.5 - 20 (>5 - 8)	> 20 - 40
> 20 - 40	7.5 - 12.5 (3 - 5)	> 20 - 40	7.5 - 12.5 (3 - 5)	> 20 - 40	7.5 - 12.5 (3 - 5)	> 40 - 60
> 40 - 60	-	> 40 - 60	-	> 40 - 60	-	> 60 - 80
> 60	-	> 60 - 80	-	> 60 - 80	-	> 80
-	-	> 80	-	> 80	-	-

### 5.2 Soft cuttlefish

Soft cuttlefish sizes of different types are defined in Table 2:

**Table 2: Size of whole round, whole cleaned, fillet and head**

whole round	whole cleaned	fillet	head
Weight (g) of a cuttlefish	No. / kg	No. / kg	Pieces /kg
> 800	< 5	2 - 4	< 5
> 500 - 800	5 - 10	> 4 - 7	5 - 10
> 300 - 500	>10 - 20	> 7 - 12	> 10 - 20
> 150 - 300	> 20 - 40	> 12 - 20	> 20 - 30
50 - 150	> 40 - 60	> 20 - 30	> 30 - 40
< 50	> 60	> 30 - 40	> 40 - 60
-	-	> 40 - 60	> 60
-	-	> 60 - 80	-
-	-	> 80	-

## 5.3 Cuttlefish

Cuttlefish sizes of different types are defined in Table 3:

**Table 3: Size of whole round, whole cleaned, fillet and head**

whole round	whole cleaned	fillet	head
Weight (g) of a cuttlefish	No. / kg	No. / kg	Pieces /kg
> 800	< 5	2 - 4	< 5
> 500 - 800	5 - 10	> 4 - 7	5 - 10
> 300 - 500	>10 - 20	> 7 - 12	> 10 - 20
> 150 - 300	> 20 - 40	> 12 - 20	> 20 - 30
50 - 150	> 40 - 60	> 20 - 30	> 30 - 40
< 50	> 60	> 30 - 40	> 40 - 60
-	-	> 40 - 60	> 60
-	-	> 60 - 80	-
-	-	> 80	-

## 5.4 Octopus

Sizing of octopus and baby octopus are defined in Tables 4 and 5:

**Table 4: Octopus sizing**

Weight (gram / octopus)
> 2,000
> 1,000 - 2,000
> 500 - 1,000
> 300 - 500
200 - 300
< 200

**Table 5: Baby octopus sizing**

Number of octopus /kilogram
< 15
15 - 25
>25 - 40
> 40 – 60
> 60

**Remark: Cephalopods sizing are assessed from number or length or weight.**

## 6 PACKAGING

### 6.1 Origin

Catching location or origin or both shall be declared on label.

### 6.2 The packing and packaging

6.2.1 Cephalopods shall be packed in a packaging that can maintain product quality.

6.2.2 The same packaging shall contain only the same species of cephalopods and product type with labeling of catching location and/or origin.

6.2.3 Packaging shall be non-water absorbent, clean, hygienic, free from odor and foreign matter as well as durable to transportation. And it shall be able to maintain quality of products.

6.2.4 In case of using ice, ice shall be produced from clean water with its quality in compliance with the notification of the Ministry of Public Health on "Ice".

## 7 CONTAMINANTS

In compliance with the provisions of the relevant laws and requirements of the Thai Agricultural Standard pertaining to Contaminants

## 8 HYGIENE

8.1 Capturing, post harvest handling and transportation shall be complied with good hygienic practices to prevent deterioration of cephalopods quality and contamination which may cause hazards to human health. Capturing technique, practice in the fishing vessel, post harvest handling are recommended in Annex D.

8.2 Microorganisms in each lot shall not exceed specified criteria as follows:

(1) Total viable counts

Total viable counts shall not exceed  $10^6$  CFU/1 g of sample and the number of samples with total viable counts within  $10^6$  to  $10^7$  CFU /1 g of sample shall not exceed three out of five.

(2) *Escherichai coli*

The Most Probable Number (MPN) of *Escherichai coli* shall not exceed 11 /1 g of sample and the number of samples with MPN of *Escherichai coli* within 11-500 /1 g of sample shall not exceed three out of five.

(3) *Staphylococcus aureus*

*Staphylococcus aureus* shall not exceed  $10^3$  CFU /1 g of sample and the number of samples with *Staphylococcus aureus* within  $10^3$  to  $10^4$  CFU /1g of sample shall not exceed two out of five.

(4) *Salmonella spp.*

*Salmonella spp.* shall not be found in 25 g of sample.

(5) *Vibrio cholerae*

*Vibrio cholerae* shall not be found in 25 g of sample.

The analysis in 8.2 shall be conducted in accordance with section 10.

## 9 MARKING OR LABELING

Each package shall bear the legible and indelible code, mark or statements without false or deceptive information as follows:

### 9.1 Cephalopods for wholesale

- (1) Types and styles as identified in section 3
- (2) Name and address of wholesalers or packers identification code (if available)
- (3) Catching and processing site, date and transportation method as well as storage temperature during transportation
- (4) Class according to section 4.2, size according to Tables one to five and total weight in SI unit.

### 9.2 Cephalopods for the consumers

- (1) Types and styles as identified in section 3
- (2) Name and location of distributors or re-packers or registered trademark
- (3) Class according to section 4.2, size according to Tables one to five and total weight in SI unit
- (4) Instruction for use should indicate the following statements
  - (4.1) "storage at temperature approximately 0°C"
  - (4.2) "Best before or expiry date"

### 9.3 Certification mark

Certification mark of this standard shall be complied with the requirements of inspection body the Ministerial Regulation of the Ministry of Agriculture and Cooperatives regarding Certification Mark.

## 10 METHODS OF ANALYSIS AND SAMPLING

10.1 Analysis and Sampling of contaminants shall be complied with Thai Agricultural Standards on Sampling Method and other relevant laws.

### 10.2 Sampling and analyses for examination of microorganism

#### 10.2.1 Sampling and lot acceptance

- (1) Lot means cephalopods of the same species and product type which is from the same catching or preliminary processing plants at the same time.
- (2) Random sampling shall be carried out with five samples per lot.
- (3) All results of analysis shall be complied with section 8.2 of this standard.

#### 10.2.2 Analysis

The microbiological analysis shall be conducted in accordance with the hygiene requirements in section 8.2. The methods of analysis shall be in accordance with FDA/Bacteriological Analytical Manual 8<sup>th</sup> Edition (Rev. A) 2001 or the latest edition or an equivalent analysis method.

## ANNEX A

## Quality Grading Criteria for Cephalopods

## A.1 Squid, soft cuttlefish and cuttlefish

A.1.1 Characteristics Level	Grade
(1) Skin (skin included)	
- body of squid is quite transparent white with sparsely grey or purple or pink spots, body of soft cuttlefish and cuttlefish is quite transparent white.	3
- white body, color spots break to groups of purple-red spot and skin is easily peeled	2
- body has pink or unnatural color.	1
(2) texture	
- firm with a moderate elasticity, natural white or light pink	3
- texture not firm with little elasticity, pale pink	2
- soft texture, pigment absorbed in meat, yellowish pink or orange	1
(3) odor	
- a natural ,slightly smell of fresh cephalopods or odorless	3
- little fishy smell but not rotten smell	2
- strong fishy smell, decomposed smell or other unusual smell	1

## A.2 Octopus

A.2.1 Characteristics Level	Grade
(1) Skin (skin included)	
- Body is dark grey with sparsely brown or grey spots. Abdomen side is white with little mucus.	3
- Body is yellowish grey, abdomen side is pinkish yellow, color spots break to brown with moderate mucus.	2
- Body has -purplish brown or unnatural color, with lots of mucus.	1
(2) texture	
- firm with a moderate elasticity, grayish white color	3
- not firm texture with little elasticity, grayish white and pale pinkish yellow color	2
- soft texture, the pigment absorbed in meat, pinkish yellow body	1
(3) odor	
- natural, slightly smell of fresh cephalopods or odorless	3
- little fishy smell but not rotten smell	2
- strong fishy smell, decomposed smell or other unusual smell	1

ANNEX B

1.Types and styles of squid



Whole round



Whole cleaned



Tube



Fillet



Tentacles

**2. Types and styles of soft cuttlefish**



**Whole round**



**Whole cleaned**



**Fillet**



**Tentacles**



**Wings**

### 3. Types and styles of cuttlefish



**Whole round**



**Fillet**



**Wings**



**Tentacles**

**4. Types and styles of octopus**



**Baby octopus gutted**



**Octopus gutted**



**Baby octopus ink off**

## ANNEX C

### CONTAMINANTS

In compliance with the provisions of relevant laws and regulations in particular the latest version

Contaminants detected in food shall not exceed the specified criteria as follows:

- (1) Lead: 1 mg / kg food<sup>1</sup>
- (2) Mercury: 0.5 mg / kg food for seafood<sup>1</sup>
- (3) Inorganic arsenic: 2 mg/kg food for aquatic animals and seafoods
- (4) Cadmium: 1 mg / kg food<sup>3</sup>

- References:
1. Notification of the Ministry of Public Health No.98. B.E.2529 (1986).  
RE: Food Standard Containing Contaminants
  2. Notification of the Ministry of Public Health No.273. B.E.2546 (2003).  
RE: Food Standard Containing Contaminants (issue 2)
  3. Proposed Draft Maximum Levels for Cadmium at step 3 of the Codex procedure, 2004, (Alinorm 04/27/12, Appendix XXIII)

## ANNEX D

### **Recommendations on capture technique, practice for the fishing vessels, post harvest handling after capture and appropriate transportation for cephalopods**

This Annex is a recommendation to prevent deterioration of cephalopods quality and contamination which may cause hazard to human health.

#### **1. Capture methods**

Catching of Cephalopods is divided to three methods as follows:

- (1) The use of trawls
- (2) The use of traps
- (3) The use of surrounding net, scoop net, lift net
- (4) Other methods such as push net, hook, stake trap, drift gill net etc.

Any method shall maintain the best quality of cephalopods and strictly follow the code of fishing ethics.

#### **2. Practices for the fishing vessels**

2.1 Cephalopods storage areas on vessel i.e. storage rooms in vessel, tanks or containers.

- Storage rooms in vessel should be
  - constructed with appropriate insulation.
  - divided to facilitate water drainage.
- Storage rooms in vessel or tanks should have a smooth surface, no dead-end corner and should be constructed for ease of cleaning
- Storage containers should be made of non water absorbent materials such as plastics and available in sufficient quantity.
- Shall be made of corrosion resistant materials and non-toxic substances.

2.2 Operations on vessels

- Use deck areas and orlop deck for holding and storing cephalopods respectively. Cephalopods should be separated from other fish.
- Areas of the deck should be splashed with clean sea water to reduce temperature before placing cephalopods on it.
- Areas of the deck and orlop deck shall always be kept clean.
- Storage areas for fuel, grease, cleaning solution and disinfectant shall be segregated from areas for cephalopods.
- Water used with cephalopods on vessels shall be clean sea water.
- Sea water from the polluted area should not be used in the vessels.
- Ice used on vessels shall be produced from clean water or clean sea water.
- Places for storage or containers for ice and water shall be in good condition and good hygienic, constructed with non rusting materials and easily cleaned.
- Ice conveying shall be conducted in a hygienic practice and avoid directly contact with floor.
- Toilets, water draining pipes and waste disposal systems shall be designed to avoid contamination with cephalopods.
- Toxic substances or harmful substances for consumers including detergents, disinfectants shall be stored separately with clear labeling.
- Vessels shall be equipped with sufficient and proper cleaning equipment in clean and dry condition.

2.3 Hygienic practices

- Vessels, equipment and other tools used in fishing and conveying should be in good functioning condition and clean.
- All equipment should be cleaned after use.
- Cleaning timetable should be established and strictly followed.
- Before and after salvaging the net, the deck and other relevant equipment shall be cleaned.
- Net and other tools relating to fishing shall be regularly kept clean without remains of aquatic animals. Otherwise these remains will cause spoilage smell and be a source of microorganisms that would contaminate cephalopods.
- Waste disposal from fishing vessels shall not cause problems to public health and environment.
- After fishing vessels docked on port, all cephalopods shall be unloaded. Water and ice in orlop deck shall be totally removed. The whole area of orlop deck and containers shall be cleaned with detergents and disinfectants before loading ice for the next fishing trip.
- Select an effective method of washing, cleaning, disinfecting. Permitted detergents and disinfectants should be used with considerations on their properties and factors, i.e. temperature, pH, concentration, surface type, types of waste and cleaning methods. Different chemicals shall not be mixed because they might become less effective.
- After vessels and equipment are cleaned with detergents, they shall be washed by clean water prior to using or contacting with cephalopods.
- The orlop deck or cephalopods tanks, when not in use, should have good ventilation. Lacking sufficient ventilation might cause stuffy smell and growth of microorganisms. After cleaning; tanks, equipment and other tools should be exposed to the wind for some times before storage.
- On fishing vessels, pets such as bird, rodent and insect shall be controlled and eradicated. The application of ratsbanes, insecticides and other toxic substances should be used in accordance with instructions on label.
- Pets such as dog, cat and other animals are forbidden on vessel areas relating with conveyance and storage of cephalopods,
- Foods reserved in vessels for consumption shall not be kept in ice storage rooms used for cephalopods because cross contamination may happen and consequently affect quality of cephalopods.

### **3. Post harvest handling after capture**

- Post harvest handling shall be conducted immediately when cephalopods come on board. This includes sorting species, sizing and separating the defective cephalopods which should be stored separately
- Cephalopods shall be immediately washed with clean sea water or clean water after sorting and then stored in ice.
- Handling during conveyance of cephalopods should be conducted carefully and rapidly to prevent scratch, tear or missing of cephalopods organs.
- Use fined or crushed ice to increase contact area to rapidly reduce cephalopods temperature and damage.
- Cephalopods should be stored in a basket or container and kept with clean and sufficient ice during storage.
- Sorting of species and sizing shall be conducted at each catching.
- During holding on a deck, cephalopods shall be prevented from direct sunlight and placed in ice.

#### **4. Cephalopods unloading**

- Cephalopods shall be carefully and rapidly unloaded to shore.
- For long distance transportation, container with size over 20 kg shall not be used.
- Cephalopods should be prevented from contamination during sorting, weighing and conveying.

#### **5. Transportation**

Vehicles and equipment used in cephalopods transportation shall have properties as follows:

- Walls, floors and ceilings shall be constructed with corrosive resistant materials as well as have smooth and non water absorbent surfaces. Floors are able to allow good water drainage.
- Cephalopods temperature during transportation shall be kept at approximately 0 °C or below.
- Transportation condition shall be able to prevent contamination, decomposition or deterioration of cephalopods.