



National Standard of the People's Republic of China

GB 20941-2016

**National food safety standard
Hygienic practice of aquatic products**

Issue date: 2016-12-23

Implementation date: 2017-12-23

**Issued by the National Health and Family Planning Commission of the
People's Republic of China
China Food and Drug Administration**

Foreword

This standard replaces GB/T 20941-2007 *Good manufacturing practice for fish products processing factory* and GB/T 23871-2009 *Code of hygienic practice for fish and fishery products processing establishment*.

The following main changes have been made with respect to GB/T 20941-2007 and GB/T 23871-2009:

——Standard name is revised as *National food safety standard - Hygienic practice of aquatic products*;

——Standard structure is modified;

——Standard scope is modified;

——Terms and Definitions are modified;

——Requirements of the food safety control in the whole production process of aquatic products such as material, processing, product storage and transportation are emphasized, and major measures to control biological, chemical and physical contamination are established;

——Annex A "Guidelines for microbe monitoring program for processing of aquatic products" is added.

National food safety standard

Hygienic practice of aquatic products

1 Scope

This standard specifies the basic requirements and management guidelines for sites, facilities and personnel for material purchasing, accepting, processing, packaging, storage and transportation in the production process of aquatic products.

This standard is applicable to the production of aquatic products.

2 Terms and definitions

For the purpose of this standard, the terms and definitions specified in GB 14881-2013 apply.

2.1 aquatic products

Foods processed from fish, shrimps, crabs, cephalopods, shellfish, echinoderms, coelentera, algae and other edible aquatic organisms.

2.2 temporary breeding

Process of breeding live aquatic products in clean water for a period of time.

2.3 shellfish purification

Process of breeding live shellfish caught in areas meeting fishery water quality standards in natural or artificially cleaned seawater for a period of time to reduce the number of microorganisms in the body.

3 Site selection and plant environment

3.1 Site selection

Site selection shall meet the requirements of 3.1 in GB 14881-2013.

3.2 Plant environment

3.2.1 Plant environment shall meet the requirements of 3.2 in GB 14881-2013.

3.2.2 Animals not concerned with production and processing shall not be bred in the area.

4 Plant room and workshop

They shall meet the relevant requirements of Clause 4 of GB 14881-2013.

5 Facilities and equipment

5.1 Facilities

5.1.1 Water supply facilities

5.1.1.1 Water supply facilities shall meet the requirements of 5.1.1 in GB 14881-2013.

5.1.1.2 The processing water shall be equipped with water purification or disinfection facilities according to the local water quality characteristics and product requirements. If necessary, water storage facilities shall be arranged in non-contaminated areas and these facilities shall be made of non-toxic, odorless, anti-corrosive and non-shedding materials, which are convenient for regular cleaning and disinfection, and they shall be sealed and properly protected to ensure the safety and hygiene of processing water.

5.1.2 Drainage facilities

Drainage facilities shall meet the requirements of 5.1.2 in GB 14881-2013.

5.1.3 Cleaning and disinfection facilities

Cleaning and disinfection facilities shall meet the requirements of 5.1.3 in GB 14881-2013.

5.1.4 Waste storage facilities

5.1.4.1 Waste storage facilities shall meet the requirements of 5.1.4 in GB 14881-2013.

5.1.4.2 Waste containers shall be waterproof, corrosion resistant and leak proof. If pipes are used to transport wastes, the installation, maintenance and use of pipes shall not contaminate the product.

5.1.5 Personal sanitary facilities

Personal sanitary facilities shall meet the requirements of 5.1.5 in GB 14881-2013.

5.1.6 Ventilation facilities

Ventilation facilities shall meet the requirements of 5.1.6 in GB 14881-2013.

5.1.7 Lighting facilities

Lighting facilities shall meet the requirements of 5.1.7 in GB 14881-2013.

5.1.8 Storage facilities

Storage facilities shall meet the requirements of 5.1.8 in GB 14881-2013.

5.1.9 Temperature control facilities

Temperature control facilities shall meet the requirements of 5.1.9 in GB 14881-2013.

5.2 Equipment

5.2.1 Production equipment

5.2.1.1 General requirements

General requirements shall meet the requirements of 5.2.1.1 in GB 14881-2013.

5.2.1.2 Materials

Materials shall meet the requirements of 5.2.1.2 in GB 14881-2013.

5.2.1.3 Design

5.2.1.3.1 The design shall meet the requirements of 5.2.1.3 in GB 14881-2013.

5.2.1.3.2 The design and manufacture of equipment, containers and utensils being in contact with aquatic products shall be easy to drain, clean, disinfect and maintain.

5.2.1.3.3 Equipment and tools shall be smooth to avoid obvious internal corners, humps, gaps or cracks so as to prevent material or dust from sticking.

5.2.2 Monitoring equipment

Monitoring equipment shall meet the requirements of 5.2.2 in GB 14881-2013.

5.2.3 Equipment maintenance and repair

5.2.3.1 Equipment maintenance and repair shall meet the requirements of 5.2.3 in GB 14881-2013.

5.2.3.2 The equipment maintenance shall not contaminate the product; after maintenance, the maintenance area shall be cleaned and disinfected; the raw material pretreatment equipment shall be kept free from rust.

6 Hygiene management

6.1 Hygiene management system

6.1.1 Hygiene management system shall meet the requirements of 6.1 in GB 14881-2013.

6.1.2 Special containers shall be clearly marked, and material containers at different processing stages shall not be mixed with each other.

6.2 Hygiene management for plant and facilities

They shall meet the requirements of 6.2 in GB 14881-1913.

6.3 Health management and hygienic requirements for aquatic products processing personnel

They shall be in accordance with the requirements of relevant national laws and regulations.

6.4 Pest control

Pest control shall meet the requirements of 6.4 in GB 14881-2013.

6.5 Disposal of waste

6.5.1 The storage and disposal system of discarded raw materials and packaging materials and wastes such as parasites, shells, sea urchin shells, shrimp guts, sea cucumber calcareous mouths, etc., which are sorted out during processing, shall be formulated and these wastes shall be disposed in a timely and effective manner so as not to contaminate the aquatic products, aquatic products contact surfaces, water supply and the ground.

6.5.2 Waste location outside the workshop shall be isolated from food processing site to prevent contamination; objectionable odor like stinking smell shall be prevented from escaping and insect pest shall be prevented from breeding.

6.6 Management of work clothes

6.6.1 Management of work clothes shall meet the requirements of 6.6 in GB 14881-2013.

6.6.2 Special waterproof work clothes such as gloves, sleeves, aprons, shoes and boots shall be provided.

7 Raw materials, food additives and food related products

7.1 General requirements

General requirements shall meet the requirements of 7.1 in GB 14881-2013.

7.2 Raw materials

7.2.1 Raw materials shall meet the requirements of 7.2 in GB 14881-2013.

7.2.2 All raw materials shall be from waters meeting the requirements of relevant national standards.

7.2.3 The water quality for temporary breeding and transportation of seawater aquatic products and freshwater aquatic products shall meet the requirements of the relevant national standards.

7.2.4 The raw materials of animal aquatic products shall meet the requirements of GB 2733, and the raw materials of algae products shall meet the requirements of GB 19643.

7.2.5 If non-muscle tissues such as viscera, eggs, skin, fins, scales, bones, shells, etc. of aquatic animals are used as raw materials of aquatic products, they shall meet the requirements of GB 2733.

7.2.6 Dead jaundice, mantis shrimp, river crab and shellfish shall not be used as raw materials for production and processing.

7.2.7 If necessary, bivalve molluscs shall be subjected to shellfish purification.

7.2.8 Toxin detection shall be carried out for raw materials of aquatic products with biotoxins such as bivalve molluscs and puffer fish, and these raw materials shall be accepted and treated according to relevant regulations to ensure safety.

7.2.9 Raw materials for raw aquatic products shall be subjected to pathogenic bacteria, viruses, parasites and eggs inspection.

7.3 Food additives

7.3.1 Food additives shall meet the requirements of 7.3 in GB 14881-2013.

7.3.2 Food additives shall be used according to those specified in GB 2760.

7.4 Food related products

7.4.1 Food related products shall meet the relevant requirements of 7.4 in GB 14881-2013.

7.4.2 Processing water, ice-making water, thawing water and steam water shall meet the requirements of GB 5749.

7.4.3 The manufacture, crushing, transportation and storage of ice used in the processing shall be carried out under hygienic conditions; the containers used for containing, transportation and storage shall be easy to clean and avoid contamination.

7.5 Others

Others shall meet the requirements of 7.5 in GB 14881-2013.

8 Food safety control in production process

8.1 Product contamination risk control

8.1.1 It shall meet the requirements of 8.1 in GB 14881-2013.

8.1.2 The quality and safety management system based on hazard analysis shall be established and implemented, and the necessary food safety control measures shall be taken. In the risk assessment of hazards, different process characteristics of aquatic products shall be fully considered to determine the hazard prevention measures and critical control point.

8.1.3 Raw material pretreatment, freezing, cooking, drying, smoking, salting and other processing processes shall be relatively isolated according to their respective processing techniques and product characteristics to prevent cross-contamination of human flow, logistics and airflow.

8.1.4 Waste water and waste shall be avoided to cause contamination to raw materials and products.

8.2 Control of biological contamination

8.2.1 Cleaning and disinfection

Cleaning and disinfection shall meet the requirements of 8.2.1 in GB 14881-2013.

8.2.2 Microbe control in the processing of aquatic products

8.2.2.1 General requirements

8.2.2.1.1 General requirements shall meet the requirements of 8.2.2 in GB 14881-2013.

8.2.2.1.2 The plan for microbe monitoring of the environment and production process is determined according to the characteristics of aquatic products and may be implemented by reference of the requirements of Annex A. If necessary, the monitoring procedures for pathogenic bacteria in the processing of aquatic products shall be established.

8.2.2.1.3 Where there is an abnormality in the monitoring indicators of aquatic products at the end of the production line, the sampling frequency of microbe monitoring in the environment shall be increased, the quantity of sampling points shall be appropriately increased according to the situation, and appropriate corrective measures shall be taken.

8.2.2.1.4 A temperature indicator shall be installed in the process or place where temperature control is required.

8.2.2.1.5 The operation in need of steam shall be provided with adequate pressure and steam.

8.2.2.1.6 The thawing time and temperature of raw materials for aquatic products shall be strictly controlled.

8.2.2.2 Microbe control of aquatic products in different processes

8.2.2.2.1 Refrigerated aquatic products

8.2.2.2.1.1 Cooling measures shall be provided in processing workshop.

8.2.2.2.1.2 The processed aquatic products shall be moved to a refrigerated environment as soon as possible, and a temperature indicator shall be provided in the refrigerator.

8.2.2.2.2 Frozen aquatic products

8.2.2.2.2.1 The freezing time and temperature shall be determined according to the natural state of the aquatic product such as thickness, shape, production quantity, etc., to ensure that the maximum ice crystal formation zone is passed as soon as possible.

8.2.2.2.2.2 Adequate cold treatment shall be ensured for raw seafood to kill parasites harmful to human body.

8.2.2.2.2.3 Where the product is packaged after freezing, the packaging operation shall be carried out in a temperature-controlled environment to ensure that the temperature of the frozen product center is lower than -18°C .

8.2.2.2.3 Dried aquatic products

8.2.2.2.3.1 The drying process shall be done in a pest-proof and dust-proof manner.

8.2.2.2.3.2 The drying time, drying temperature and ambient humidity of dry products shall be strictly controlled to ensure that the water activity of dry products is within safe limits.

8.2.2.2.4 Pickled aquatic products

8.2.2.2.4.1 Appropriate salinity shall be provided for the production of pickled products to prevent the proliferation of non-halophilic bacteria.

8.2.2.2.4.2 Installations preventing the infestation of mosquitoes and flies shall be provided.

8.2.2.2.5 Canned aquatic products

Adequate sterilization temperature and time shall be ensured.

8.3 Control of chemical contamination

8.3.1 It shall meet the requirements of 8.3 in GB 14881-2013.

8.3.2 The cleaning and disinfection plan shall be formulated according to the characteristics of different types of aquatic products, and shall be implemented by designated personnel. The detergents and disinfectants used shall respectively comply with the requirements of GB 14930.1 and GB 14930.2.

8.3.3 There shall be no disinfectant residue on the contact surface of aquatic products.

8.3.4 Packaging materials in contact with aquatic products shall comply with the corresponding standards to prevent the migration of harmful substances to food so as to ensure human health.

8.4 Control of physical contamination

It shall meet the requirements of 8.4 in GB 14881-2013.

8.5 Packaging

8.5.1 Packaging shall meet the requirements of 8.5 in GB 14881-2013.

8.5.2 Packaging materials for frozen aquatic products shall be selected from materials with low temperature resistance and good water resistance.

8.5.3 The tanks of canned aquatic products shall be made of corrosion-resistant

materials.

9 Inspection

The inspection shall meet the relevant requirements of Clause 9 in GB 14881-2013.

10 Storage and transportation of aquatic products

10.1 General requirements

General requirements shall meet the relevant requirements of Clause 10 in GB 14881-2013.

10.2 Storage

10.2.1 The goods in warehouse shall be kept at a certain distance from the wall, the ground and the ceiling, stored separately and clearly marked.

10.2.2 The storage warehouse shall be kept clean and tidy and meet the food hygiene requirements.

10.2.3 The temperature and humidity of the storage warehouse shall meet the requirements of product characteristics. The temperature of refrigerating room shall be maintained at 0°C~4°C. The temperature of frozen room shall be controlled below -18°C.

10.3 Transportation

During transportation, insulation or cooling measures shall be provided for refrigerated aquatic products and frozen aquatic products, and the transportation time and temperature fluctuations shall be minimized.

11 Product recall management

Product recall management shall meet the relevant requirements of Clause 11 in GB 14881-2013.

12 Training

Training shall meet the relevant requirements of Clause 12 in GB 14881-2013.

13 Management system and personnel

Management system and personnel shall meet the relevant requirements of Clause 13 in GB 14881-2013.

14 Record and document management

Record and document management shall meet the relevant requirements of Clause 14 in GB 14881-2013.

Annex A

Guidelines for microbe monitoring program for processing of aquatic products

A.1 See Table A.1 for the microbe monitoring for processing of aquatic products.

Table A.1 Microbe monitoring requirements for processing of aquatic products

| Monitoring item | | Suggested sampling points ^a | Suggested monitored microbe ^b | Suggested monitoring frequency ^c | Suggested monitoring index limit |
|--------------------------------------|--|--|---|--|---|
| Microbe monitoring in environment | Contact surface of aquatic products | Hands, work clothes, gloves of food processing personnel, conveying belt, tools and instruments and surfaces of other equipment directly contacting food | Aerobic bacteria count, coliform bacteria, etc. | After cleaning and disinfection, the cleaning effect shall be verified | Monitoring index limit is determined in combination with actual situation of production |
| | Contact surface adjacent to aquatic products or aquatic products contact surface | External surface of equipment, support surface, contact surfaces of control panel and part car | Aerobic bacteria count, coliform bacteria, etc. | Every two weeks or every month | Monitoring index limit is determined in combination with actual situation of production |
| | Ambient air in processing area | Position close to exposed product | Aerobic bacteria count, yeast and mold, etc. ^d | Every week, every two weeks or every month | Monitoring index limit is determined in combination with actual situation of production |
| Microbe monitoring during processing | | Process product whose | Microbe indicators for | The product produced in the | Monitoring index limit is |

| Monitoring item | Suggested sampling points ^a | Suggested monitored microbe ^b | Suggested monitoring frequency ^c | Suggested monitoring index limit |
|--|--|--|---|---|
| | microbe level may change and may affect the food safety and (or) food quality during processing link | hygienic condition (such as aerobic bacteria count, coliform bacteria, yeast and mold or other indicator bacteria) | first time of shift beginning and every week (every two weeks or every month) of subsequent continuous production process | determined in combination with actual situation of production |
| <p>^a Sampling points may be selected according to the characteristics of different aquatic products and actual situation of processing.</p> <p>^b One or more hygiene microbe indicator(s) may be selected for monitoring according to the requirements.</p> <p>^c Monitoring frequency may be determined according to the risk of specific sampling points.</p> <p>^d Suitable for pickled and dried aquatic products.</p> | | | | |

A.2 The treatment requirements for inconformity condition of microbe monitoring: the monitoring result of each monitoring point shall meet the monitoring index limit and remain stable; where the slight inconformity appears, measures such as increasing sampling frequency may be adopted to strengthen monitoring; where the severe inconformity appears, correction shall be carried out immediately and the reason leading to problem shall be found out at the same time to determine whether the corresponding corrective measures are taken for microbe monitoring program.