

## ANNEX 2

### **Technical Guidelines for the Prevention, Control and Disinfection of COVID-19 Virus in the Production and Operation Process of Cold Chain Food**

#### **1. Basis and scope of application**

In order to standardize and guide the prevention and control of the COVID-19 virus in the cold chain food production and operation process, and to prevent food and food packaging materials from being contaminated by the COVID-19 virus, refer to the "Guidelines for the prevention and control of COVID-19 in meat processing enterprises issued by the State Council's joint prevention and control mechanism for the COVID-19 epidemic" "(Joint Prevention and Control Mechanism Zongfa (2020) No. 216), "Emergency Notice on Strengthening the Nucleic Acid Testing of COVID-19 Virus in Cold Chain Foods" (Joint Defense and Joint Control Mechanism Zongfa (2020) No. 220), "Clothing Trade (Collection) "Technical Guidelines for the Prevention and Control of COVID-19 in the Market" (Joint Prevention and Control Mechanism Zongfa (2020) No. 223), " COVID-19 Prevention and Control Plan (Seventh Edition)" (Joint Prevention and Control Mechanism Zongfa (2020) 229 No.), as well as relevant national food safety standards and the " COVID-19 and Food Safety: Guidance for Food Enterprises" (April 2020) issued by the Food and Agriculture Organization of the United Nations/World Health Organization and other documents to formulate this guide.

This guide is applicable to cold chain foods that are processed by freezing and refrigeration methods, and the products are always in a low temperature state from the factory to the sale. It is used to guide the normal operation of food production and operation units and individuals during the normalization of the prevention and control of the COVID-19 epidemic. Disinfection of cold chain foods from high-risk areas of the COVID-19 epidemic at home and abroad during loading and unloading, transportation, storage and sales.

Relevant units and individuals of food production and operation strictly abide by laws and regulations and relevant national food safety standards require the implementation of local competent authorities' regulations on the prevention and control of the COVID-19 epidemic, which is a prerequisite for applying this guide.

#### **2. Cleaning and disinfection during production and processing**

In the process of cold chain food production and processing, an effective cleaning and disinfection system should be formulated for processing personnel, production environment and related equipment and facilities according to the characteristics of food raw materials and product characteristics, production and

processing technology, and the implementation and effect of disinfection and broadcasting should be regularly monitored and evaluated.

### **2.1 Food production and processing personnel**

Food production and processing personnel entering the work area should confirm that they are in good health and that their personal protection meets relevant requirements, and regularly disinfect their hands with alcohol-free disinfectant.

### **2.2 Outer packaging of raw materials and semi-finished products**

2.2.1 The outer packaging of cold-chain food raw materials and semi-finished products from high-risk areas (countries) of the COVID-19 epidemic should be strictly and effectively disinfected before entering the enterprise or warehouse.

2.2.2 Tools and utensils used to transport cold chain food raw materials or semi-finished products (such as transfer boxes, spoons, pliers, etc.) should be cleaned and disinfected in time after each use.

2.2.3 For food raw materials and semi-finished products from foreign epidemic areas that have been tested and contaminated by the COVID-19 virus, they should follow the "Emergency Notice on Adding COVID-19 Virus Nucleic Acid Testing for Cold Chain Foods" (Joint Prevention and Control Mechanism Zongfa (2020) No. 220) Nan dealt with the food handler who was positive for the COVID-19 virus nucleic acid in China.

### **2.3 Production and processing equipment and environment**

2.3.1 Equipment and appliances. Before production and processing, the utensils used after processing should be placed separately and kept properly to avoid cross contamination. All equipment and utensils after production and processing (or when necessary during production and processing) should be effectively cleaned and disinfected, and the selected cleaning and disinfection procedures and disinfection stingers should be able to effectively kill the COVID-19 virus.

2.3.2 Environment. Increasing the production environment of each link in the processing of cold-chain food raw materials, the workshop environment of each production link of ready-to-eat and cooked food, and the life-saving sorties in high-risk areas such as storage cold storage. During the production and processing process, the environment must be thoroughly cleaned after production. And disinfection, in particular, the frequency of cleaning and disinfection of various operating surfaces, contact surfaces/points (such as door handles, switches, appliance handles, telephones, toilets, etc.) that people touch during production and processing, and crowded environments should be strengthened.

2.3.3 For all kinds of meat, aquatic products, egg products and other foods rich in protein and fat, the surface shape or dirt is not easy to remove due to the easy contact with the surface, and the production and processing environment is generally low in temperature and high in humidity. Fully toxic effect, minimize the amount of disinfection used, shorten the time of the disinfection and the surface of the object, all meat, aquatic products, egg products and other foods rich in protein and fat contact with containers, equipment or environmental objects The surface must be thoroughly cleaned before disinfection.

#### 2.3.3.1 Choice of cleaning thorns

Commonly used food processing equipment and environmental cleaning agents include alkaline solutions, salt solutions (such as phosphate, carbonate, silicic acid), acid (such as citric acid, phosphoric acid) solutions and synthetic detergents (such as open ion, cation, Non-ionic alkaline detergent) etc. Among them, the functional solution is the most commonly used cleaning solution in the processing environment of meat, aquatic products and egg products. At present, the most commonly used cleaning agent for meat processing enterprises is 1.5% sodium hydroxide solution, which can saponify fat and hydrolyze protein deposits. In addition, various synthetic detergents can also effectively remove meat deposits, fats and dirt. They should be in full contact with the surface to be cleaned at an appropriate temperature and kept for a certain period of time before being rinsed with water. Another way to saponify fat and facilitate cleaning is to prepare a protease solution with a low concentration of protease that can decompose protein. Since the enzyme is inactivated at high pH and high temperature, the temperature and pH of the enzyme solution are moderate, which can greatly reduce the rot on the surface to be cleaned.

#### 2.3.3.2 Cleaning procedures

(1) In order to save detergent and water, first use physical methods to remove the dirt on the surface.

(2) Use water to further rinse off the dirt. In order to reduce the generation of aerosols, high-pressure water should not be used as much as possible.

(3) Apply an alkaline solution or synthetic detergent/hour solution with a temperature of 50-55°C to the surface to be cleaned. After contacting for 6-12 minutes, clean and wipe the surface to be cleaned. In order to make the cleaning agent fully contact the surface to be cleaned, it is best to use foaming detergent to clean the vertical surface.

(4) Rinse the alkali solution or detergent with clean water.

(5) Alkaline solution cannot remove water activity or rust. Acid (such as acid, hydrochloric acid or organic acid such as citric acid, gluconic acid) can be used to remove scale or rust.

#### **2.3.3.3 Disinfection**

(1) In order to improve the disinfection effect and prevent insufficient contact between the disinfectant and the surface of the object and reduce its activity, all equipment or environmental surfaces to be disinfected must be thoroughly cleaned according to the above procedures before they can be disinfected. Commonly used disinfectants include gas, iodine-containing disinfectants or quaternary iron salt solutions.

(2) Whether the disinfected surface needs to be cleaned depends on the disinfectant used. Quaternary salt disinfectants can remain on the equipment for a long time, so quaternary salt and iodine-containing disinfectants must be thoroughly rinsed with water after use.

(3) If the surface of the equipment becomes corrosive after disinfection, oiling can be used to protect the corroded area. If the application oil is a food grade product, it does not need to be removed. If it is non-food grade oil, the oil should be removed before the next processing shift begins.

(4) Use the in-situ cleaning method to continuously clean the moving conveyor belt and other parts of the production and processing equipment.

### **3. Cleaning and disinfection during transportation and distribution**

#### **3.1 Personnel**

During the cold chain food delivery process, drivers and transport attendants should maintain personal hand hygiene, and the vehicle should be equipped with alcohol-based hand sanitizer, disinfectant and paper towels to ensure that hands are disinfected regularly without washing hands with clean water.

#### **3.2 Object surface**

Drivers should wash or disinfect their hands before transferring and submitting delivery documents to employees. To avoid washing the returned items, the documents are best placed in disposable containers and packaging materials. For reusable containers, regular and appropriate sanitary cleaning and disinfection should be carried out.

Surfaces that are most likely to be contaminated by viruses, such as steering wheel door handles and mobile devices that are frequently touched by human hands, should be disinfected regularly.

### **3.3 Transportation**

In order to avoid contamination of cold-chain food, drivers must ensure that transport vehicles, handling tools and containers are clean and regularly disinfected.

Upon loading the vehicle, separate food from other cargo that may cause pollution whenever cargo is mixed. Before and after the vehicle carries a batch of goods, the parts in the vehicle that may be touched by the hands, especially the inside and outside of the vehicle compartment, must be thoroughly detoxified.

## **4. Cleaning and disinfection during the sales operation**

4.1 The employees in the cold chain food sales and operation area shall maintain good hygiene practices and frequently use hand sanitizer to wash and disinfect their hands to keep their hands clean and sanitary.

4.2 Clean and disinfect all kinds of surfaces, handles (such as door handles, refrigerating equipment handles, holding utensils handles, cart handles, etc.), buttons (such as calculators, electronic weighing device buttons, etc.), etc. that must be touched by human hands in a timely manner. After the operation is completed every day, the operation area shall be fully disinfected.

4.3 It is convenient for customers to wash their hands and disinfect. It should be ensured that the hand washing facilities in the store are operating normally and equipped with quick-drying hand disinfectants; when conditions permit, induction hand disinfection facilities can be equipped.

## **5. Cleaning and disinfection during catering**

5.1 The catering industry should conduct frequent cleaning and disinfection of all cold-chain food contact surfaces, outer packaging and utensils, and strengthen the cleaning and disinfection of tableware (drinking) utensils and two-flavor containers.

5.2 Do a good job of disinfecting the surface of high-frequency contact objects, and perform various equipment, areas, contact surfaces/high-frequency contact points (such as countertops/masters/service appliances/open self-service display stands), pull pole bridges, sanitary ware, etc. Frequent cleaning and disinfection, while increasing the frequency of cleaning and disinfection of the work clothes of the staff.

5.3 Ensure that the hand washing facilities in the store are operating normally and are equipped with quick-drying hand disinfectants; when conditions permit, they can be equipped with induction hand disinfection facilities.

**6. Commonly used disinfectants in production and operation and methods of use.**

The disinfectants commonly used in the production, transportation, and sales of cold chain food and their use methods are shown in the attached table.

## Schedule

## Common disinfectants in cold chain food production and operation and their use methods

Type of Disinfectants	Active Ingredient	Scope of Application	Instructions	Precaution
Alcohol type disinfectant	Amount of ethanol is 70%~80% (v/v), alcohol-containing hand disinfectant > 60% (v/v), and the compound product can be in accordance with the product manual.	Mainly use flat hands and skin to disinfect smaller objects.	Hygienic hand disinfection: Do not spray the hands into the coating, rub the handle 1~2 times, for 1 min. Wipe the surface of the object twice for 3 minutes.	<ol style="list-style-type: none"> <li>1. Flammable, keep away from fire source.</li> <li>2. It is not suitable for disinfection of large-area surfaces.</li> </ol>
Chlorine-containing disinfectant	Calculated by effective chlorine, the content is expressed in mg/L or %, bleaching powder $\geq 20\%$ , sodium dichloroisocyanurate $\geq 55\%$ , 84 disinfectant according to the product specification, usually 2%~5%.	It is suitable for the disinfection of the surface of objects, fruits & vegetable and food and drinking utensils. The hypochlorous acid disinfectant can also be used for the disinfection of air, hands, skin and mucous membranes.	<ol style="list-style-type: none"> <li>1. When disinfecting the surface of an object: use a concentration of 500mg/L.; When disinfecting a epidemic focus, use a concentration of 1000 mg/L, on the surface of an object with obvious contaminants, use a concentration of 10000mg/L; for other disinfection such as air, follow the product instructions.</li> <li>2. Surface disinfection of low-temperature refrigerated objects: use concentration 1000mg/L; when disinfecting</li> </ol>	<ol style="list-style-type: none"> <li>1. It is corrosive to metals, bleaching and color-fading effects on fabrics, so be careful to use on metals and colored fabrics.</li> <li>2. Strong oxidant, shall not contact with flammable materials, should be away from the fire source.</li> </ol>

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			<p>the epidemic focus, the surface object use concentration of 2000 mg/L, when there are obvious pollutants, use a concentration of 20000mg/L.</p> <p>3. Disinfection of the surface of the frozen object: The method of lowering the freezing point shall be adopted, ensure the disinfectant does not freeze, and also shall verify the effect of disinfection.</p>	
Peroxide type disinfectant	<p>Hydrogen peroxide disinfectant: The mass fraction of hydrogen peroxide (calculated as H<sub>2</sub>O<sub>2</sub>) is 3% to 6%.</p> <p>Peracetic acid disinfectant: Peracetic acid (calculated in C<sub>2</sub>H<sub>4</sub>O<sub>3</sub>.) quality score 15% ~ 21%.</p>	It is suitable for disinfection of surface and air.	<p>1. The surface of the object: 0.1%~0.2% peracetic acid or 3% hydrogen peroxide, spraying or immersing 30 minutes for disinfection, and then rinsed with water to remove the residual disinfectant.</p> <p>2. Air disinfection: 0.2% peracetic acid or 3% hydrogen peroxide, using aerosol spray method, the usage amount is calculated at 10mL/m<sup>3</sup>~20mL/m<sup>3</sup>, ventilation after 60 minutes of disinfection application: can also use 15% peracetic acid to be heated</p>	<p>1. Flammable and an explosive product, encounter with open flame and high heat can cause combustion and explosion.</p> <p>2. There is a danger of combustion and explosion when contact with reducing agent or metal powder.</p>

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			<p>and fumigated, and the usage amount is calculated at 7mL/m<sup>3</sup>, ventilation after 1-2 hour of the fumigation application.</p> <p>3. Low temperature refrigerated object surface disinfection: 0.2%~0.4% peracetic acid or 6% hydrogen peroxide, spraying or immersing 30 minutes for disinfection, and then rinse with water to remove residual disinfectant.</p> <p>4. Disinfection of the surface of the frozen object: The method of lowering the freezing point shall be adopted, ensure the disinfectant does not freeze, and also shall verify the effect of disinfection.</p>	
Quaternary ammonium salt type disinfectant	According to the product specification.	Suitable for disinfection of the surface of objects.	<p>1. Surface disinfection: when there are no obvious pollutants, the use concentration is 1000mg/L; when there are obvious pollutants, the use concentration is 2000mg/L.</p> <p>2. Surface disinfection of low-</p>	It can not be used with soap or other anionic detergents, nor can it be used with iodine or peroxides (such as potassium permanganate, hydrogen peroxide, sulfanilamide powder,

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			<p>temperature refrigerated objects: when there are no obvious pollutants, the use concentration is 2000mg/L; when there are obvious pollutants, the use concentration is 4000mg/L.</p> <p>3. Surface disinfection of frozen objects: The method of lowering the freezing point shall be adopted, ensure the disinfectant does not freeze, and also shall verify the effect of disinfection.</p>	etc.).
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