



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 4789.26-2023

**National food safety standard - Food microbiological
examination - Commercial sterilization**

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Table of Contents

Foreword...	3
1 Scope...	4
2 Terms and Definitions...	4
3 Equipment and Materials...	4
4 Culture Media and Reagents...	5
5 Commercial Sterility Inspection in Food Circulation Field...	5
6 Commercial Sterility Inspection in Food Production Field...	9
Appendix A Culture Media and Reagents...	13
Appendix B Inoculation Culture and Abnormality Analysis...	18

Foreword

This Standard replaced GB 4789.26-2013 National Food Safety Standard - Food Microbiological Examination - Commercial Sterility.

Compared with GB 4789.26-2013, the major changes of this Standard are as follows.

- Add definitions of commercial sterile and acidified foods;
- Add commercial sterility inspection procedures in the field of food production;
- Delete the requirement of re-weighing after heat preservation and the method for testing the sealing of cans;
- Modify the scope of the standard, the definitions of low-acid food and acidic food, and the inspection procedures.

National Food Safety Standard - Food

Microbiological Examination - Commercial Sterilization

1 Scope

This Standard specifies food commercial sterility inspection procedures, inspection procedures,

result determination and report requirements.

This Standard applies to the inspection of food commercial sterility.

2.1 Commercial sterility

A state in which food has been moderately heat sterilized and does not contain pathogenic microorganisms or non-pathogenic microorganisms that can reproduce in it at normal temperatures.

2.3 Acidic foods

Foods that have not been acidified, and after sterilization, the balanced pH of the food itself or

the soup is equal to or less than 4.6, and the water activity is greater than 0.85. Tomato products

with a pH less than 4.7 are acidic foods.

2.4 Acidified foods

Foods whose water activity is greater than 0.85 and whose balance pH is equal to or less than

3 Equipment and Materials

In addition to the routine sterilization and culture materials and equipment of the microbiology

laboratory, other equipment is as follows.

4.6 Ethanol solution containing 4% iodine. 4g of iodine is dissolved in 100mL of 70% ethanol

solution.

4.7 75% ethanol solution. Measure 75mL of absolute ethanol and 25mL of water respectively,

mix well and set aside.

5.1 Inspection procedures

The commercial sterility inspection procedures in the food circulation field are shown in Figure

1.

5.2.2 Heat preservation

Take 1 sample from each batch and store it in a refrigerator at 2 degrees C~5 degrees C as a control, and keep

the remaining samples at 36 degrees C+/-1 degrees C for 10 d.

5.2.4 Retention samples

After opening, use a sterile straw or other appropriate tools to take out at least 30mL (g) of the

contents into a sterilized container from a sterile operation; and store it in a refrigerator at 2°C

~ 5°C. It can be used for further testing when necessary. The sample can be discarded after reaching the test conclusion.

5.2.5 Sensory inspection

In an inspection chamber with sufficient light and clean air and no odor, pour the sample contents into a white enamel plate or glass container (suitable for liquid samples); and observe

and smell the structure, shape, color, and smell of the product. Samples containing solid matter

shall check the product properties according to the food; identify whether the food has signs of

corrosion and deterioration; and observe the conditions inside the packaging container and record them.

5.3.1 If the sample does not bulge in the can (bag, bottle, cup, etc.) or leak after the heat

preservation test, open it after heat preservation; and if it is confirmed through sensory inspection, pH measurement, and smear microscopy that there is no microbial proliferation, the

sample can be reported commercial sterility.

5.3.2 If the sample does not bulge in the can (bag, bottle, cup, etc.) or leak after the heat

preservation test, open it after heat preservation; and if it is confirmed through sensory inspection, pH measurement, and smear microscopy that there is microbial proliferation, the

sample can be reported non-commercial-sterility.

6.1 Commercial sterility inspection procedures in food production field

See Figure 2 for commercial sterility inspection procedures in the field of food production.

6.2.1 Preparation of sample

After food production and processing, production enterprises shall establish appropriate sampling plans and AQL (acceptance quality limit) based on product characteristics and enterprise quality objectives, product sterilization methods, specifications, batch size and other

factors, and with reference to relevant national standards.

6.2.2 Heat preservation

Food production companies can refer to Table 1 to develop a heat preservation plan suitable for

product inspection of this company. The extracted samples should be carried out heat preservation in a constant-temperature culture chamber or constant-temperature incubator according to the requirements of the heat preservation plan.

6.3.1 If the taken sample has not occurred expanded cans (bags, bottles, cups, etc.) or leakage

after the heat preservation test, and if it is confirmed that there is no microbial proliferation through sensory inspection, pH test, staining microscopy, or inoculation culture, then the sample shall be reported as commercial sterility;

Appendix A

Culture Media and Reagents

A.1 Bromocresol purple glucose broth

A.2 Cooked meat culture medium

A.2.1 Ingredients

Beef infusion. 1000.0mL;

A.2.2 Preparation method

A.2.2.1 Weigh 500g of fresh ground beef with the fat and fascia removed; add 1000 mL of