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NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA

GB 4789.18-2024

**National food safety standard - Food microbiology testing -
Sampling and sample processing for milk and milk products**

食品安全国家标准

食品微生物学检验 乳与乳制品采样和检样处理

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Table of Contents

Foreword	3
1 Scope	4
2 Equipment and materials	4
3 Sampling	4
4 Sample processing	6
5 Inspection	8

National food safety standard - Food microbiology testing - Sampling and sample processing for milk and milk products

1 Scope

This standard specifies the sampling and sample processing methods for milk and milk products.

This standard applies to the sampling and sample processing of milk and milk products.

2 Equipment and materials

2.1 Sampling tools

Sampling tools shall be made of stainless steel or other materials of appropriate strength, with smooth surfaces, rounded corners, and no gaps. Sampling tools shall be cleaned, sterilized, and kept dry before use. Sampling tools include stirring utensils, sampling spoons, scoops, cutting wires, scissors, knives (knives or spatulas), sampling drills, etc.

2.2 Sample container

The material (such as glass, stainless steel, and plastic) and structure of the sample container shall be able to fully ensure the original state of the sample. Containers and lids shall be clean, sterile, and dry. The sample container shall be of sufficient volume so that the sample can be fully mixed before testing. Sample containers include sampling bags, sampling tubes, sampling bottles, etc.

2.3 Other supplies

The alcohol lamp, thermometer, aluminum foil, sealing film, markers, sampling registration form, etc. are included.

3 Sampling

3.1 Sampling principles and sampling plans

Sampling principles and sampling plans shall be implemented in accordance with the provisions of GB 4789.1.

The number of sampling pieces n shall be implemented in accordance with the

requirements of relevant food safety standards. The sampling volume of each sample shall not be less than 5 times the sample of the inspection unit, or determined according to the purpose of inspection. The following specifies the sampling requirements for a food sample.

3.2 Raw milk

3.2.1 The samples shall be mixed as fully as possible, and samples shall be taken immediately after mixing. Use sterile sampling tools to collect samples from the same batch (here specifically refers to individual milk storage tanks or milk storage trucks).

3.2.2 For milk storage devices with divided areas, a certain amount of uniformly mixed representative samples shall be collected from each divided area in proportion according to the different amounts of milk stored in each divided area. Sampling after mixing is not allowed.

3.3 Liquid milk products (pasteurized milk, high-temperature sterilized milk, modified milk, etc.)

3.3.1 For individually packaged liquid milk products less than or equal to 1000 g(mL), take individual packages from the same batch.

3.3.2 For individually packaged liquid milk products greater than 1000 g(mL), take individual packages from the same batch; or shake evenly and then take the sample.

3.4 Semi-solid milk products

3.4.1 Concentrated milk products, fermented milk, and flavored fermented milk

3.4.1.1 For products with an individual package less than or equal to 1000 g(mL), take individual packages of the same batch.

3.4.1.2 Products that are individually packaged greater than 1000 g(mL) shall be shaken or stirred with a stirrer before sampling to achieve uniformity before sampling. If the sample cannot be mixed uniformly, representative samples shall be taken from different parts of the sample container.

3.4.2 Single cream, cream, anhydrous cream

3.4.2.1 For products with an individual package less than or equal to 1000 g(mL), take individual packages of the same batch.

3.4.2.2 Products that are individually packaged greater than 1000 g(mL) shall be shaken or stirred with a stirrer before sampling to achieve uniformity before sampling. For solid cream and its products, use a sterile spatula to remove the surface layer of the product, with a thickness of not less than 5 mm. Push the clean and dry sampling drill downward

4.2 Raw milk and liquid milk products

Shake the test sample well, take 25 mL(g) of the test sample, put it into a sterile container containing 225 mL of sterilized diluent or enrichment solution, shake evenly, and try to avoid the generation of foam when shaking well.

4.3 Semi-solid milk products

4.3.1 After sterilizing the area around the mouth of the bottle or jar, open the bottle or jar with a sterilized can opener, weigh 25 g of the sample aseptically, and place it into a sterile container containing 225 mL of sterilized diluent or enrichment solution, then shake or homogenize.

4.3.2 When using a homogeneous bag, there is no need to preheat the diluent, just tap the diluent to mix it evenly.

4.3.3 For products with a fat content of more than 20%, an appropriate proportion of sterilized Tween-80 can be added according to the fat content for mixing. The amount added can be calculated by adding 1 g/L for every 10% of the fat content (for example, if the fat content is 40%, add 4 g/L). You can also preheat the diluent or enrichment solution to 44 °C~47 °C.

4.4 Solid milk products

4.4.1 Cheese, processed cheese, and cheese products

After opening the outer package by aseptic operation, remove part of the surface sealing wax from the coated samples, and cut the cheese directly with a sterilized knife through aseptic procedures for the uncoated samples. Use a sterile knife (spoon) to take out an appropriate amount of representative sample from the surface and deep layers respectively, weigh 25 g of the test sample, put it into a sterile container containing 225 mL of diluent or enrichment solution, choose an appropriate method to homogenize it and then test. If it is expected that a uniform suspension cannot be obtained after sample processing, the diluent or enrichment solution can be preheated to 44 °C~47 °C.

4.4.2 Milk powder, formulated milk powder, whey powder, and whey protein powder

The opening and sampling method for canned milk powder or formulated milk powder is the same as 4.3.1. For bagged milk powder or formulated milk powder, wipe the mouth of the bag with 75% alcohol cotton balls to disinfect it and then open it. Aseptically weigh 25 g of the sample, slowly pour it onto the surface of 225 mL of diluent or enrichment solution in a sterile container, let it stand at room temperature to dissolve, and then test. If the dissolution is not complete, shake gently or use a peristaltic mixer to mix. For whey powder produced by the acidification process, it shall be diluted with dipotassium hydrogen phosphate buffer with pH 8.4±0.2. For specially formulated

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