



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

GB 5413.30-2016

**National food safety standard - Determination of Impurities in
Milk and Milk Products**

食品安全国家标准 乳和乳制品杂质度的测定

(English Translation)

Issued on: December 23, 2016

Implemented on: June 23, 2017

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

Table of Contents

Foreword...	3
1 Application Scope...	4
2 Principle...	4
3 Reagents and Materials...	4
4 Apparatus...	4
5 Analytical Procedures...	5
6 Expression of Analytical Results...	5
7 Accuracy...	5
Annex A (Normative) Testing of Impurities Filter Plate...	6
Annex B (Normative) Preparation of Impurities Reference Standard Plate...	8

Foreword

This Standard replaces GB 5413.30-2010, National Food Safety Standard - Determination of Impurities in Milk and Milk Products.

Compared with GB 5413.30-2010, the major changes of this Standard are as follows.

- the technical requirements for impurities filter plate are added;
- the testing procedures in Annex A are simplified and the measurement of impurities loss is modified into the measurement of impurities residuals in the Annex;

- the preparation of impurities reference standard plate is modified into the methods for the preparation of two standard plates for liquid milk and milk powder;
- the constituents and particle size of impurities are redefined.

National Food Safety Standard -

Determination of Impurities in Milk and Milk Products

1 Application Scope

This Standard specifies the method for the determination of impurities in milk and milk products.

This Standard applies to the determination of impurities in fresh and raw milk, pasteurized milk, sterilized milk, condensed milk and milk powder; it does not apply to the determination of impurities in milk and milk products added with substances which decrease the efficiency of filter and insoluble coloured matters.

2 Principle

The specimen of fresh and raw milk, liquid milk, water reconstituted milk powder is filtered through impurities filter plate; the limit of impurities in the specimen is determined by comparing the visible non-white impurities remaining on the impurities filter plate with the impurities reference standard plate.

3 Reagents and Materials

Unless stated otherwise, the reagents used in this Method are analytically pure and the water is grade-3 water as specified in GB/T 6682.

3.1 Impurities filter plate. white cotton plate of diameter 32 mm, mass 135 mg $\pm$ 15

mg and thickness 0.8 mm ~ 1.0 mm, which shall be as specified in Annex A. Impurities filter plate shall be tested in accordance with Annex A.

4.2 Filter equipment. impurities filter machine or suction flask, which is capable of

achieving rapid filter by positive pressure or negative pressure (the filter time of each litre of water is 10 s ~ 15 s).

5.2 Determination

Place impurities filter plate on the filter equipment, pour the prepared specimen solution into the funnel of the filter equipment (which shall not overflow from the funnel) and filter.

6 Expression of Analytical Results

The result obtained by comparing the impurities filter plate after filtering and the impurities reference standard plate is the degree of impurities in the specimen.

7 Accuracy

For two tests repeated on the same specimen in accordance with the method specified in this Standard, the results shall be consistent.

Annex A

(Normative)

Testing of Impurities Filter Plate

A.1 Reagents and Materials

A.1.1 Reagents

A.1.2.3 Carob bean gum. biochemical reagent.

A.1.2.4 Sucrose.

A.1.2 Preparation of reagents

A.1.2.1 Methyl alcohol solution (40%). measure 40 mL of methyl alcohol to pour into a 100-mL volumetric flask, add water dropwise to 100 mL, and filter as standby.

A.1.3 Material

Impurities. use dirt on the floor to dry in a constant temperature drying oven ($100^{\circ}\text{C} \pm 1^{\circ}\text{C}$), use a standard screen to collect dirt constituents of particle size $75\ \mu\text{m} \sim 106\ \mu\text{m}$, and dry to constant weight.

A.2 Apparatus

A.2.1 Balance. sensitivities 0.1 g and 0.1 mg.

A.2.2 Standard screen.

A.2.3 Desiccator. containing effective desiccant.

A.2.4 Constant temperature drying oven. accuracy $\pm 1^{\circ}\text{C}$.

A.2.5 Filter equipment. as in 4.2.

A.3 Testing procedures

A.4 Evaluation

A.4.1 $M = N_2 - N_1$, M shall be $\geq 10\ \text{mg}$. And use a sharp razor blade to cut off the surface layer of the impurities filter plate and examine the remaining part where no impurity shall appear.

A.4.2 Test 10 pieces per 1 000 pieces and count as 1 000 pieces if less than 1 000 pieces.

Annex B

(Normative)

Preparation of Impurities Reference Standard Plate

B.1 Reagents and materials

B.1.1 Reagents

B.1.1.1 Arabic gum. biochemical reagent.

B.1.2 Preparation of reagents

B.1.2.1 Arabic gum solution (0.75%). weigh 1.875 g of Arabic gum to pour into a 100-mL beaker, add 20 mL of water and heat to dissolve, and cool down. Use water to transfer to a 250-mL volumetric flask and add dropwise to the scale, and filter.

B.1.2.2 Sucrose solution (50%). weigh 1 000 g of sucrose to place into a 1 000-mL beaker, add 500 mL of water to dissolve, use water to transfer to a 2 000-mL volumetric flask and add dropwise to the scale, and filter.

B.1.3 Preparation of materials

B.1.3.1 Cow dung

B.2 Apparatus

B.2.1 Balance. sensitivities 0.1 g and 0.1 mg.

B.2.2 Standard screen.

B.2.3 Filter equipment. as in 4.2.

B.3 Procedures for preparing liquid milk reference standard impurities plate

B.3.1 Preparation of liquid milk impurities reference standard solution

B.3.1.1 Weigh accurately 500.0 mg of cow dung to place into three 100-mL beakers, namely A, B and C. Add 2 mL of water, add 23 mL of Arabic gum solution, use sucrose solution to transfer to a 500-mL volumetric flask after mixing up and add dropwise to the scale, fully mix up until the impurities distributes uniformly, and obtain the cow dung impurities reference standard solutions of concentration 1.0 mg/mL, namely a0, b0 and