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The National Standard of People's Republic of China

GBxxxx—xxxx

Replace GB19645-2005, GB5408.2-1999

Sterilized Milk

(Draft for approval)

Issued on xx-xx-xxxx

Implemented on xx-xx-xxxx

Issued by the Ministry of Health
of the People's Republic of China

Preface

This standard replaced GB 19645-2005 Hygiene Standard of Pasteurization, sterilized milk and the safety index of GB 5408.2-1999 Sterilized milk.

In comparison with GB 19645-2005, the major changes of this standard are as follows:

- The pasteurized milk and sterilized pure milk is divided into three standards for description, the name of standard is changed to “Sterilized milk”;
- Terms and definitions are specified;
- The limits of Acid value in physical-chemical requirements is changed to the range of value;
- The limits of contaminants is directly cited from GB2762;
- The limits of mycotoxins is directly cited from GB2761;
- The expressing way of microbiological parameters is changed;
- The labelling is modified.

This standard is proposed by and interpreted by Ministry of Health of P.R. China.

This standard replaces all previous standard as follows:

- GB 5408.2-1999;
- GB 19645-2005.

Sterilized Milk

1. Scope

This standard stipulates terms and definitions of sterilized milk, technical requirements, processing, packaging, labelling, storage & transportation, test methods.

This standard applies to the processing, circulation and supervision of sterilized milk.

2. Normative Cited Documents

The clauses in the following documents became clauses of this standard through the quotation in this standard. For cited documents with date, all their subsequent modification (corrected contents are not included) or revision do not apply to this Standard. However, parties having reached an agreement based on cited standards with date are encouraged to study whether the latest versions of the cited documents with date are applicable. For cited documents without date, the latest version applies to this Standard.

GB 2761	Maximum levels of mycotoxins in Food
GB 2762	Maximum levels of Contaminants in Food
GB 4789.26	Microbiological examination in foods, Determination of commercial sterility in canned foods
GB 5009.5	Determination of protein in food
GB xxxx	Determination of fat in milk product and foods for Infant and young children
GB xxxx	Determination of acidity in milk and milk products
GB 7718	General standard for the labelling of prepackaged foods
GB 12693	Good manufacturing practice for dairy product factory
GB 19301	Raw milk

3. Terms and definitions

The following terms and definitions apply to this standard.

3.1 Ultra high-temperature treatment of milk

The liquid products useing raw bovine (or ovine) milk as the only ingredient, when milk is continuous flowing, being heated to at least 132℃ and keep for a short time to sterilization, then aseptic filling etc process.

3.2 Retort sterilized milk

The product using raw bovine (or ovine) milk or reconstituted milk as major ingredient, with or without addition of accessory materials, preheated or not, sterilized after filling and seal.

4. Technical requirements

4.1 Raw material requirements

4.1.1 Fresh milk: should comply with GB 19301.

4.1.2 Other materials: should comply with corresponding safety standards and related regulation

4.2 Sensory requirements

Milky white or light yellow, have the taste the product should have, no strange odor, uniform liquid, no curd or sedimentation.

4.3 Physical-chemical requirements

Should comply with Table 1.

Table 1 Physical-chemical requirements

Item	Limits
Fat ^a /(g/100g) ≥	3.1
Protein/(g/100g)	
Bovine milk ≥	2.9
Goat milk ≥	2.8
Milk solids non fat /(g/100g) ≥	8.1
Acidity/(° T)	
Bovine milk	12~18
Ovine milk	6~13
a: Not apply to skimmed or partial skimmed Ultra high-temperature sterilized milk	

4.4 Limits of contaminants

Should comply with GB 2762.

4.5 Limits of Mycotoxins

Should comply with GB 2761.

4.6 Microbiology requirements

Should meet commercial sterility.

5. processing

Should comply with GB 12693.

6. Packaging

The packaging container and material of product should comply with corresponding standard and related regulations.

7. Labelling

7.1 The content of label should comply with GB 7718 and provisions of relevant state laws and regulations.

7.2 UHT milk can mark "pure milk / dairy" in Chinese in the main display panel, closing to the position of product name. The font of Chinese should not less than which for product name, and the font height should not less than one-fifth of main display panel.

7.3 Sterilized milk totally made from milk powder should mark "reconstituted dairy" or "reconstituted milk" close to the position of product name. Sterilized milk made from

milk powder and fresh milk should mark “containing xx% reconstituted dairy” or “containing xx% reconstituted milk” close to the position of product name.

“xx%” means the mass percentage of added milk powder in total milk solids of sterilized milk.

“reconstituted milk” and product name should be marked on the same main display panel of container; the labelled “reconstituted milk” should be outstanding, with font size not less than which for the product name, and font height not less than one-fifth of main display panel.

8. Storage and Transportation

8.1 Storage

The product should be stored at dry, well-ventilated place and should not stored with poisonous, harmful, peculiar smelled, volatile, corrosive substances in the same place.

8.2 Transportation

During transportation, product should avoid exposure to sun and rain. Transportation should not be mixed with poisonous, harmful, peculiar smelled substances or substances that affecting product quality.

9. Testing methods

9.1 Sensory requirements

Milky white or slightly yellow colloidal liquid, no sedimentation, no curd, no impurity, with inherent aroma of sterilized milk, no peculiar smell.

9.2 Physical and Chemical requirements

9.2.1 Fats: testing according to GBxxxx.

9.2.2 Protein: testing according to GB 5009.5.

9.2.3 Milk Solid Non Fat (MSNF)

9.2.3.1 method 1

Take a glass Petri dish with diameter of 5~7cm, adding 20g refined sea sand, dry at 95~105℃ for 2h, then cool in desiccator for 0.5h, weigh, and repeated drying to a constant. Take 0.5mL sample to the constant glass dish, weigh and put it on water bath till evaporated, wipe watermarks outside of dish. Dry at 95~105℃ for 3h, take out and cool in desiccator for 0.5h, weigh, dry at 95~105℃ for 1h, take out and weigh after cooling, until the quality difference not exceed 1.0mg. Calculate the content of total solids according to formula(1), calculate content of MSNF according to formula(2):

$$X = \frac{m_1 - m_2}{m_3 - m_2} \times 100 \dots\dots\dots (1)$$

In this formula:

X— Total solids content of sample, g/100g;

m_1 —weight of dish, sea sand and sample after drying, g;

m_2 —weight of dish and sea sand, g;

m_3 —weight of dish, sea sand and sample before drying, g;

$$X = X_1 - X_2 \dots\dots\dots(2)$$

In this formula:

X — content of Milk solids non fat of sample, g/100g;

X_1 — content of total solids of sample, g/100g;

X_2 —fat content of sample, g/100g.

The results should keep two significant figures, the absolute error for the two independent testing results under the repeatability conditions, should not exceed 5% of the arithmetic mean.

9.2.3.2 Method 2

According to formula 2 and 3, total solids content can be calculated from the reading of above milk consistency meter and the fat content.

$$X_3 = 0.25 X_1 + 1.2 X_2 + 0.14 \dots\dots\dots (3)$$

In this formula:

X_3 —content of total solids of sample, g/100g;

X_1 — reading of the milk consistency meter;

X_2 — fat content of sample, g/100g.

When using 20°C/4°C milk consistency meter, should add 2° to the reading results, then calculate according to formula (3). The content of milks solids non fat could be calculated according to formula (2).

9.2.4 Acidity: testing according to GBxxxx.

9.3 Microbiology requirements

Microbiology examination is carried out according to methods regulated in GB 4789.26.