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Infant feeding bottles and teats

婴幼儿用奶瓶和奶嘴

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Table of Contents

Infant feeding bottles and teats

1 Scope

This Standard specifies technical requirements, test methods, inspection rules, marks, transport and storage for infant feeding bottles and teats.

This Standard is applicable to infant feeding bottles (container, teat and matched accessory) that are made of one or more of plastic, glass, metal, ceramic, silicone rubber, rubber.

This Standard is not applicable to medical bottles and teats. It is not applicable to pacifiers.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 131-2006, *Geometrical Product Specifications (GPS) - Indication of surface texture in technical Product documentation*

GB/T 2828.1, *Sampling procedures for inspection by attributea - Part 1: Sampling schemes indexed by acceptance quality limit(AQL) for lot-by-lot inspection*

GB/T 2918, *Plastics - Standard atmospheres for conditioning and testing*

GB/T 4545, *Test methods for stress examination of glass containers*

GB/T 4547, *Glass containers - Test methods of the thermal shock resistance and thermal shock endurance*

GB/T 6552, *Glass containers - Test method for impact resistance*

GB/T 6579, *Laboratory glassware - Thermal shock and thermal shock endurance - Test methods*

GB/T 6582, *Glass - Hydrolytic resistance of glass grains at 98°C - Method of test and classification*

3.4.6 handle

a part that is installed on the container to facilitate the use of the feeding bottle

3.4.7 tube disc

a part that connects the tube and seals the teat to help suck fluid food

3.4.8 tube

a hollow tube that is installed inside the feeding bottle to connect the gravity ball and the tube disc

3.4.9 gravity ball

a part that is connected to the end of the tube and acts as a gravity guide

3.4.10 matched components

when feeding infants, other parts that are used in conjunction with container, teat, drinking accessory, protective cover, locking ring, sealing disc, filtering gauze, handle, tube disc, tube and gravity ball

3.5 numbered graduations

scale mark with numerical value and unit to show the volume of fluid food in the feeding bottle

4 Technical requirements

4.1 General requirements

4.1.1 Components

4.1.1.1 Appearance

It shall be clean, neat, without foreign objects. There shall be no gaps, holes, or deformations that affect the use (except for design requirements).

4.1.1.2 Edge and tip

The feeding bottle and its components shall not have sharp edges and sharp tips that may cause injury or danger.

4.1.1.3 Ink adhesion of printing pattern

For reuse products or components, the ink adhesion of the marked printing pattern (including text and numbered graduations) shall meet the requirements

When tested according to 5.2.2.6.1, the components of the feeding bottle (including teat or drinking accessory) shall not protrude from the bottom of the test template A / template B.

If the teat or drinking accessory protrudes from the bottom of the test template A / template B, it shall meet the requirements of 4.1.2.6.2.

If the components of the feeding bottle (excluding teat or drinking accessory) protrude from the bottom of the test template A / template B, it shall meet the requirements of 4.1.2.6.2.2.

4.1.2.6.2 Other requirements for teat or drinking accessory

4.1.2.6.2.1 Length

Assemble the teat or drinking accessory according to the instructions for use. When tested according to 5.2.2.6.2.1, the length of the teat or drinking accessory shall be less than or equal to 100mm.

4.1.2.6.2.2 Safety retention

When tested for safety retention according to 5.2.2.6.2.2, the components of the feeding bottle (including teat or drinking accessory) shall not be broken, cracked or separated from the container.

4.1.2.6.2.3 Flexibility test

When tested for flexibility according to 5.2.2.6.2.3, the distance between the locking ring (without locking ring, it shall be the mouth of the container) and the bending point of teat or drinking accessory is less than 40mm.

4.1.2.7 Overall drop performance

When tested according to 5.2.2.7, the container, the teat (or drinking accessary) and the locking ring shall not be separated. There shall be no visible breaks and cracks. This requirement does not apply to glass feeding bottle, ceramic feeding bottle. But safety warning shall be set (see 7.1.5).

4.2 Additional requirements

4.2.1 Resistance to compressive deformation of plastic feeding bottle container

When tested according to 5.3.1, the diameter change rate of the plastic feeding bottle container along the compression direction shall be less than or equal to 10%.

If the product declares that the container is a compressible product, this

to boiling. Maintain for 10min (the sample shall not be in contact with the inner wall of the boiling water container). Then take it out. Perform the state conditioning according to 5.1.3.

NOTE: Boiling water treatment is suitable for test items except appearance.

5.1.2 Disposable products or components

Perform the sample state conditioning according to 5.1.3.

5.1.3 State conditioning

According to the standard environment specified by GB/T 2918, in the environment of which the temperature is (23±2)°C and the relative humidity is (50±5)%, the time for state conditioning is not less than 40h. Until the test, all samples shall be placed in this environment. The test may not be carried out under the conditions of this standard environment.

5.1.4 Requirements for test water

Except for the specific provisions in the method, the test water in this Standard shall meet the requirements for grade three water in GB/T 6682.

5.2 General requirements test method

5.2.1 Components

5.2.1.1 Appearance

Visually inspect under natural light.

5.2.1.2 Edge and tip

5.2.1.2.1 Edge

Test according to the method specified in 5.8 of GB 6675.2-2014.

5.2.1.2.2 Tip

Test according to the method specified in 5.9 of GB 6675.2-2014.

Choose three different positions for each sample for testing.

Take three samples for testing. When all three samples are conforming, this item is conforming.

5.2.1.3 Ink adhesion of printing pattern

For reused products or components, the ink adhesion of printing pattern

The hardness is HRC 45~50.

Figure 5 – Sharp needle

5.2.1.7.2 Pull resistance

Use a suitable fixture, along the axis of the sample, to respectively and securely clamp both ends of the sample.

Along the axis direction of the sample, apply a pulling force of (5±2) N. Check the sample. Then, in the same direction, at a speed of (200±10) mm/min, increase the pulling force to (90±5) N. Maintain (10±0.5) s. Visually inspect the sample.

During the test, the fixture shall clamp the sample without damage. Avoid damage to the place where the sample is clamped and affect the test result. If it happens, the test result shall be invalid.

5.2.2 Test method for system performance

5.2.2.1 Fitting of components of feeding bottle

Assemble samples according to the instructions for use. Check if it can be assembled correctly.

5.2.2.2 Resistance to boiling water

Under normal temperature and pressure, disassemble the sample. All components are immersed in boiling water for 10min~12min. Take the sample out. Visually inspect the sample. During the testing process, the sample shall not be in contact with the wall of the boiling water container.

5.2.2.3 Resistance to thermal shock

Under normal temperature and pressure, disassemble the sample. Immerse all components (except glass material components) in boiling water for 10min~12min. Then take it out. Within 5s, immerse it in a mixture of ice and water at 0°C. Take it out after 10min~12min. During the testing process, the sample shall not be in contact with the wall of the boiling water container. Visually inspect the sample.

5.2.2.4 Sealing performance

Under normal temperature and pressure, pour room temperature water into the sample. The injection volume is about two-thirds of the nominal volume. Assemble the sample correctly according to the instructions for use. Invert for 3min then visually inspect the sample.

Figure 6 -- Test template A and test template B

5.2.2.6.2 Other requirements for teat or drinking accessory

5.2.2.6.2.1 Length

Use a measuring tool of which the precision is 0.02mm to measure the length from the top of the sample to the locking ring. If there is no locking ring, measure the length from the top of the sample to the mouth of the container. See Figure 8.

5.2.2.6.2.2 Safety retention

The purpose of the safety retention test is to detect the safety of the components of the feeding bottle (including teat or drinking accessory) during normal use. Because the feeding bottle is made up of multiple components, the components of the feeding bottle (including teat or drinking accessory) shall be assembled according to the instructions for safety retention test.

Assemble the sample correctly according to the instructions for use. Use a torque of (1.75±0.25) N·m to install the locking ring.

As shown in Figure 7, fix the sample. The axis of the container of the sample shall be at a 45° angle to the main axis.

Choose a right fixture to clamp the position where the test component is (10±2) mm away from the top.

Apply a tension of (5±2) N at an angle of 45° to the axis of the sample. Check the sample. Then in the same direction, at a speed of (200±5) mm/min, increase the pulling force to (60±5) N. Maintain (10±0.5) s. Visually inspect the sample.

A in Figure 7 is the direction to apply force. When testing, the fixture shall clamp the sample without damage. Avoid damage to the position where the sample is clamped and affect the test result. If it happens, the test result shall be invalid.

5.3.2.1.1 Soda lime glass

Test according to the method specified in GB/T 4547.

5.3.2.1.2 Borosilicate glass

Test according to the method specified in GB/T 6579.

5.3.2.2 Resistance to water

Test according to the method specified in GB/T 6582.

5.3.2.3 Internal stress

Test according to the method specified in GB/T 4545.

5.3.2.4 Mechanical shock strength

Test according to the method specified in GB/T 6552.

6 Inspection rules

6.1 Classification of inspection

The product inspection is divided into exit-factory inspection and type inspection.

6.2 Exit-factory inspection

6.2.1 Batching

The products not exceeding 50,000 in quantity, with the same raw materials, specifications, formulas, and processes, are a batch. If the output of 7d is less than 50,000, the output of 7d is used as a batch.

6.2.2 Inspection items

The inspection items for the exit-factory inspection are appearance, ink adhesion of printing pattern, volume deviation, and matching of feeding bottle components.

6.2.3 Sampling and determination

6.2.3.1 Appearance

Sampling and determination of appearance exit-factory inspection shall be carried out in accordance with GB/T 2828.1. Use sub-sampling plan of normal inspection. Take general inspection level II. Acceptance quality limit (AQL) is 6.5. See Table 4 for the sampling plan.

production;

b) after the formal production, for example, when the material formula and production process have significant changes that may affect product performance;

c) during formal production, for annual inspection;

d) when production is resumed after the production has been discontinued for more than 6 months;

e) when the results of the exit-factory inspection and the previous type inspection are quite different;

f) when state quality supervision agencies require to carry out the type inspection.

6.3.2 Sampling

Among the products that pass the exit-factory inspection, a sufficient number of products are randomly selected for type inspection.

6.3.3 Inspection items

The inspection items are all required items of this Standard.

6.3.4 Rules for determination

6.3.4.1 Determination for conforming items

If there are nonconforming items, double samples shall be taken to re-inspect the nonconforming items. When the reinspection result is conforming, this item shall be conforming. Otherwise this item shall be nonconforming.

6.3.4.2 Determination for conforming products

When all inspection items are conforming, the product shall be determined as conforming.

7 Marks, transport and storage

7.1 Marks

7.1.1 Basic principles

The product marks shall comply with the following basic principles:

a) Products for sale shall provide instructions for use. The instructions for

package or instructions for use.

7.1.4 Instructions for use

The instructions for use can be marked on the product or on the product's sales package or object of instructions for use. It shall at least contain the following information:

a) Safe use information of product.

b) Common heating methods that are not applicable and may cause product damage.

c) For reusable products, the following additional information shall be provided:

- At least one cleaning method;

- Indicate "Please clean this product before first use";

- Common cleaning, storage and use methods that are not applicable and may cause product damage.

d) For products with teats, the following shall be included:

- Check and stretch the teat in all directions before each use. Once damaged or defective, it shall be discarded immediately;

- Do not place the teat in direct sunlight, directly at a heat source, or in disinfectant for a long time, which will cause the teat to age;

- To ensure hygiene, disinfect in boiling water for 5min before first use. The amount of water shall be sufficient during boiling to avoid deformation of the product due to prolonged contact with the bottom or edge of the pot with a higher temperature;

- Clean or disinfect before each use.

7.1.5 Safety warnings

7.1.5.1 Safety warnings shall be marked on the product or on the product's sales package or instructions for use. The safety warning content shall include but not limited to the following.

7.1.5.2 It shall contain the following similar warnings:

"For your child's safety and health

caution!

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