

ICS 71.100.40

QB

**LIGHT INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

QB/T 2335-2012

**Oral care and cleaning products - Sorbitol solution for
toothpaste**

(English Translation)

Issued on: May 24, 2012

Implemented on: November 1, 2012

Issued by: Ministry of Industry and Information Technology of PRC

Table of Contents

Foreword
1 Scope
2 Normative references
3 Classification of products
4 Requirements
5 Test methods
6 Inspection rules
7 Marking, packaging, transportation, storage, shelf life
Appendix A (Normative) Conversion of sorbitol sugar Brix (BX) and solids (DS)

Foreword

The degree of conformity between this standard and the United States Pharmacopoeia (USP) is non-equivalent.

This standard is a revision of the standard QB/T 2335-2007 "Sorbitol solution for toothpaste".

As compared with the QB/T 2335-2007, the main changes of this standard are as follows:

- DELETE the moisture indicators and the experimental methods;
- DELETE the refractive index and the experimental method;
- DELETE the unit of relative density indicator;
- REVISE the requirements for shelf life.

This standard was proposed by the China Light Industry Association.

This standard shall be under the jurisdiction of the National Toothpaste Waxwork Standardization Center.

Responsible drafting organizations of this standard: Beijing Baojie Technology Co., Ltd., Shandong Tianli Pharmaceutical Co., Ltd., National Light Industry Toothpaste Waxwork Products Quality Supervision and Testing Center.

1 Scope

This standard specifies the product classification, requirements, test methods, inspection rules, marking, packaging, transportation, storage, shelf life of sorbitol solution for

toothpaste.

This standard is applicable to sorbitol solution which is obtained by hydrogenation reaction and refining under the action of a catalyst using liquid glucose as a raw material. This product is used as a humectant in the toothpaste industry.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this standard.

GB 7658-2005 Food additive - Sorbitol solution GB/T 601 Chemical reagent - Preparations of standard volumetric solutions GB/T 602 Chemical reagent - Preparations of standard solutions for impurity GB/T 603 Chemical reagent - Preparations of reagent solution for use in test GB/T 6283 Chemical products - Determination of water Karl-fischer method (general method) GB/T 6678 General principles for sampling chemical products GB/T 6680 General rules for sampling liquid chemical products GB/T 6682 Water for analytical laboratory use - Specification and test methods GB/T 8170 Rules of rounding off for numerical values JJF 1070-2005 Rules of metrological testing for net quantity of products in

5 Test methods

The original sample is thoroughly mixed and used as a test sample (abbreviated as specimen).

The reagents and water used in this standard are analytically pure reagents and grade-3 water which comply with GB/T 6682 unless otherwise specified.

In the standard, the standard solution for titration analysis, the standard solution for impurity determination, the preparations and products used in the test method are prepared according to the provisions of GB/T 601, GB/T 602, GB/T 603, unless otherwise specified.

5.1.1 Appearance

Take specimen. Put it into a colorimetric tube. Make visual observation.

5.1.2 Smell

Take specimen. Put it in a bottle with cover. Open the cover. Sniff it.

5.1.3 Taste

Take specimen. Taste it.

5.2.1 Materials

Nessler colorimetric tube: 50 mL.

5.2.2 Reagents

5.2.2.1

Ferric chloride.

5.2.2.2

Cobalt dichloride.

5.2.2.3

Dilute hydrochloric acid

1 + 40.

5.2.3 Standard colorimetric stock solution

Solution A: Weigh 22.5 g of ferric chloride (accurate to 0.001 g). Dissolve it in dilute hydrochloric acid solution, to make the total volume of the solution reach 500 mL. 1 mL of this solution contains 45 mg of ferric chloride.

Solution B: Weigh 5.95 g of cobalt dichloride (according to 0.001 g). Dissolve it content of the specimen.

The solid content is expressed as mass fraction X_2 and is calculated according to formula (1):

Where:

X_2 - Solid content, %;

X_1 - Moisture of specimen, %.

5.4.3 Method 2

Operating procedure: First use the Abbe refractometer to determine the sugar Brix BX at $(20 \pm 1) ^\circ\text{C}$. Then check the solids of sorbitol of the corresponding specifications in Appendix A, to obtain the solid content of the specimen.

5.5.1.1 Summary of method

Use the liquid chromatography, under the selected working conditions, use water as the mobile phase, the various components in the specimen with different adsorption coefficients are successively separated by the packing in the column. Use the differential refraction detector for testing. Use the normalized method to quantitatively calculate the mass fraction of the sorbitol component.

5.5.1.2 Reagents

Pure water: Conductivity is less than 3 $\mu\text{S}/\text{cm}$. It is filtered through a 0.45 μm membrane filter paper and heated or ultrasonically degassed.

5.5.1.3 Instruments

High-performance liquid chromatography (HPLC), including the following components:

- High-pressure pump: No pulse, which can keep the flow rate at 0.1 mL/min ~ 10.0 mL/min;
- Column: See Table 3;
- Differential refraction detector;

Au - The peak area of the sorbitol component in the specimen solution;

As - The total peak area of all components in the specimen solution.

5.5.1.6 Representation of results

Use the mass fraction to represent the sorbitol content X_3 , which is calculated according to formula (3).

Where:

w_{100} - The mass fraction of sorbitol in 100 g of dry matter, %;

X_2 - Solid content of specimen, %.

Note: The chromatographic workstation may use the above formula in the computer software programming for automatic calculation.

Take the arithmetic mean of the results of two parallel determinations as the determination result. The absolute difference between the results of the two parallel determinations is not more than 0.5%.

5.5.2 Determination of sorbitol content by external standard method

(arbitration method) it is determined according to the method of 4.5 in GB 7658-2005.

5.6.1 Instruments

5.6.1.1

Density bottle equipped with thermometer

The volume is 25 mL.