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QB

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

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**Oral care and cleansing products - Sodium lauryl sulfate for
toothpaste**

(English Translation)

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1 Scope

This standard specifies the classification, requirements, test methods, inspection rules and markings, packaging, transportation, storage, shelf life of sodium lauryl sulfate (abbreviated as K12).

This standard applies to fatty alcohols prepared by hydrogenation of natural oils and fats (main components are C12~14 alcohols), sodium lauryl sulfate prepared by sulfurization and neutralization with sulfur trioxide, including powders, needles (grain), liquid products.

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 191 Packaging - Pictorial marking for handling of goods

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 5173 Surface active agents - Detergents - Determination of anionic- active matter content - Direct two-phase titration procedure

GB/T 5009.74 Method for limit test of heavy metals in food additives

GB/T 5009.76 Determination of arsenic in food additives

GB/T 6368 Surface active agents - Determination of pH of aqueous solution

- Potentiometric method

GB 8170 Rules of rounding off for numerical values & expression and judgement of limiting values

GB/T 13173.1 Method of sample division for detergents

GB 6283-2008 Chemical products - Determination of water Karl Fischer method (general method)

Ministry of Health of the People's Republic of China

The Second Pharmacopoeia of the People's Republic of China

JJF 1070-2005 Rules of metrological testing for net quantity of products in prepackages with fixed content

Order of the General Administration of Quality Supervision, Inspection and

Quarantine of the People's Republic of China [2005] No.75 "Measures for the Supervision and Management of Quantitative Packaging Commodity

Measurement"

3 Product classification

Sodium lauryl sulfate is divided into three types according to form: powder, needle (grain), liquid products.

Structural formula: $\text{CH}_3(\text{CH}_2)_n\text{OSO}_3\text{Na}$ (main component $n = 11$)

Carbon chain distribution and odor evaluation shall be agreed by both parties.

4.1 Identification (Method 1)

The identification reaction of sodium salt shall be shown by a 10% aqueous solution of sodium lauryl sulfate. (See Appendix III of Pharmacopoeia II of the People's Republic of China).

It shall be acidified by adding 10% aqueous solution of sodium lauryl sulfate and hydrochloric acid, boiling for 20 minutes under low heating, to show the identification reaction of sulfate through solution. (See Appendix III of the

Pharmacopoeia II of the People's Republic of China).

Identification (Method 2)

Method principle: Use Fourier transform infrared spectrum for identification.

Operation procedure: Refer to Appendix IVC Infrared Spectrophotometry of

"The Pharmacopoeia II of the People's Republic of China"; the infrared absorption spectrum of this product shall be consistent with that of the standard

5 Test methods

Unless otherwise specified in the analysis, it shall use analytical reagents and distilled water or water of equivalent purity.

The test solution, preparation, standard titration solution and impurity standard solution used in this standard shall be prepared in accordance with the provisions of GB/T 601, GB/T 602, GB/T 603, unless no other requirements are indicated.

5.1.1 The identification reaction test of the development of sodium salt by 10%

aqueous solution of sodium lauryl sulfate is carried out according to the method specified in Appendix III of the "Pharmacopoeia of the People's Republic of China".

5.1.2 A 10% aqueous solution of sodium lauryl sulfate is acidified with hydrochloric acid, then boiled for 20 minutes under low heat. The identification reaction test of the sulfate development is carried out according to the method specified in Appendix III of the "Pharmacopoeia of the People's Republic of China".

5.1.3 Refer to the Appendix IVC Infrared spectrophotometry in "Pharmacopoeia

II of the People's Republic of China", the infrared absorption spectrum of this product is consistent with that of the standard product.

5.2 Preparation of specimen

The laboratory samples of sodium lauryl sulfate are prepared and stored in accordance with the provisions of GB/T 13173.1.

5.3 Appearance

Carry out visual inspection under the condition of non-direct light. Compare with the standard requirements.

5.4 Determination of active content

Method 1: Subtractive method (arbitration method)

The content (w_{alpha}) of the active substance in sodium lauryl sulfate is expressed by mass

fraction; calculated by the formula (1) and formula (2) using the subtractive method:

Powder and needle (grain) products:

Where:

w5 - The total solid content of liquid product, %.

m1 - The mass of the sample after drying, in grams (g);

m2 - The mass of the sample before drying, in grams (g).

Method 2: Two-phase titration

It is performed according to GB/T 5173.

5.5.1 Reagents

a) Anhydrous sodium sulfate;

b) Ethanol: 95%;

c) Ethanol solution: 50%;

d) Petroleum ether, boiling range 30 °C ~ 60 °C, distillation residue shall be not more than 0.002% (mass fraction).

5.5.2 Instruments

a) Beaker: 400 mL;

b) Separatory funnel: 500 mL;

c) Conical bottle: 250 mL.

5.5.3 Operating procedures

Weigh 10 g of sample, accurate to 0.0001g, in a 400 mL beaker. Add 100 mL of water and 100 mL of 95% ethanol to dissolve the sample. Transfer the solution to a 500 mL separatory funnel. Use the 50% ethanol solution to wash the residue from the beaker into the separatory funnel, until the total volume is about 300 mL. Then add 50 mL of petroleum ether (boiling range 30 °C ~ 60 °C).

Shake it for 30 s. Let it stand still for stratification. If necessary, add a small amount of 95% ethanol to break the emulsion.

Separate the lower alcoholic water phase and put it in another 500 mL separatory funnel. Add 50 mL of petroleum ether (boiling range 30 °C ~ 60 °C) for extraction. Extract the alcoholic water phase alternately three times in this way.

Combine the petroleum ether layer separated by the three extractions in c) Suction filter