

Translated English of Chinese Standard: GB/T11213.5-2006
www.ChineseStandard.net → Buy True-PDF → Auto-delivery.
Sales@ChineseStandard.net

GB

NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA

ICS 71.060.40

G 11

GB/T 11213.5-2006

Replacing GB/T 11213.5-1989
GB/T 11213.6-1989

**Sodium Hydroxide for Chemical Fiber Use – Determination
of Sulphate Content**

化纤用氢氧化钠 硫酸盐含量的测定

Issued on: December 29, 2006

Implemented on: June 01, 2007

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine;**

Standardization Administration of the People's Republic of China.

Table of Contents

Foreword.....	3
1 Scope	5
2 Normative References	5
3 Method-A (Turbidimetry)	5
4 Method-B (Barium Sulfate Weighting Method).....	8
5 Test Report.....	9

Foreword

The Method-A in this Standard corresponds to ISO 6353-1:1982 *Reagents for Chemical Analysis – Part 1: General Test Methods* (English Version); the consistency between this Standard and ISO 6353-1:1982 is non-equivalent. Method-B corresponds to ASTM E 291:2001 *Standard Test Methods for Chemical Analysis of Caustic Soda and Caustic Potash (Sodium Hydroxide and Potassium Hydroxide)* (English Version); the consistency between this Standard and ASTM E 291:2001 is non-equivalent.

This Standard simultaneously replaced GB/T 11213.5-1989 *Sodium Hydroxide for Chemical Fiber Use - Determination of Sulphate Mass Fraction - Barium Sulphate Gravimetric Method*, and GB/T 11213.6-1989 *Sodium Hydroxide for Chemical Fiber Use - Determination of Sulphate Mass Fraction – Turbidimetric*.

Compared with GB/T 11213.5-1989 and GB/T 11213.6-1989, the major changes of this Standard are as follows:

- Modify the English and Chinese names of the Standard;
- Add the “Foreword”;
- Modify the preparation of solution II and the pipetting volume of solution II in GB/T 11213.6-1989; add the calculation formula for the adding volume of standard solution, and judge the turbidity by a spectrophotometer;
- Modify the sampling volume in GB/T 11213.5-1989;
- Modify the concentration of barium chloride solution, silver nitrate solution and methyl orange indicator solution in GB/T 11213.5-1989 and the amount of barium chloride solution added in the analytical procedures;
- Modify the ignition temperature in GB/T 11213.5-1989;
- Add the “test report”.

This Standard was proposed by China Petrol and Chemical Industry Association.

This Standard shall be under the jurisdiction of Chlor-Alkali Subcommittee of National Technical Committee on Chemical of Standardization Administration of China (SAC/TC 63/SC 6).

Drafting organizations of this Standard: Jinxi Research institute of Chemical Industry; Electrochemical Factory of Zhejiang Juhua Co., Ltd.; and Yunnan Salt & Salt Industry Co., Ltd.

Participating drafting organizations of this Standard: Qingdao Haijing Chemical (Group) Co., Ltd.; and Zigong Honghe Chemical Industry Co., Ltd.

Sodium Hydroxide for Chemical Fiber Use – Determination of Sulphate Content

1 Scope

This Standard specifies the method for the determination of sulfate content in sodium hydroxide for chemical fiber use.

In this Standard, Method-A is applicable to products with a sulfate content (by Na₂SO₄) in sodium hydroxide of 0.001%~0.07%; Method-B is applicable to products with a sulfate content (by Na₂SO₄) in sodium hydroxide equal to or greater than 0.01%.

2 Normative References

The provisions in following documents become the provisions of this Standard through reference in this Standard. For dated references, the subsequent amendments (excluding corrigendum) or revisions do not apply to this Standard, however, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB/T 603 Chemical Reagent – Preparations of Reagent Solution for Use in Test Methods (GB/T 603-2002, neq ISO 6353-1:1982)

GB/T 6682 Water for Laboratory Use – Specifications (GB/T 6682-1992, neq ISO 3696:1987)

3 Method-A (Turbidimetry)

3.1 Principle

In acidic medium (hydrochloric acid), barium ions react with sulfate ions to form insoluble barium sulfate.



When the sulfate ion content is very small, the barium sulfate will be suspended within a certain period of time, making the solution turbid; and the sulfate content can be determined by visual

turbidimetry.

3.2 Reagents and materials

The reagents and water used in this method, unless otherwise specified, refer to analytical reagents and third-grade water (free of carbon dioxide) specified in GB/T 6682. The standard solutions, preparations and products required in the test, unless otherwise specified, shall be prepared according to the provisions of GB/T 603.

3.2.1 Hydrochloric acid.

3.2.2 Hydrochloric acid solution: The mass fraction is 20%.

3.2.3 Potassium sulfate ethanol solution: 0.2 g/L. Weigh 0.02g of potassium sulfate and dissolve it in a solution of 30 mL of ethanol and 70 mL of water.

3.2.4 Barium chloride ($\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$) solution: 250 g/L. Weigh 25g of barium chloride dihydrate, dissolve in water, and dilute to 100mL.

WARNING -- Barium chloride is toxic, irritant and harmful if inhaled or ingested. After contact with skin, rinse immediately with plenty of water.

3.2.5 Sulfate standard solution: 0.1 mg/mL. Weigh 0.100g of anhydrous sodium sulfate that has been dried at (105~110) °C in advance and has a constant mass; dissolve it in water; transfer it all into a 1000 mL volumetric flask; dilute with water to the mark; and shake well.

3.2.6 Sulfate standard solution: 0.01 mg/mL. Dilute the sulfate standard solution (3.2.5) to 10 times with water; and prepare this solution before use.

3.2.7 Phenolphthalein indicator solution: 10 g/L.

3.3 Apparatus

General laboratory instruments and the following instruments.

3.3.1 25 mL colorimetric tube.

3.3.2 Spectrophotometer.

3.4 Preparation of specimen solution

3.4.1 Solution I: Weigh 50 g of laboratory samples, accurate to 0.01 g; dissolve in 200 mL of water; and then dilute to 250 mL.

3.4.2 Solution II: Take 50 mL of solution I by a pipette; use phenolphthalein (3.2.7) as the indicator solution; neutralize it with hydrochloric acid solution (3.2.1); and dilute to 100 mL with water after cooling.

3.5.6 Use visual turbidimetry to compare the turbidity of the specimen with the turbidity presented by the specified standard comparison solution.

If the turbidity of the specimen is close to the turbidity of the standard comparison solution and cannot be judged accurately by visual inspection; a spectrophotometer can be used to select a suitable cuvette for comparison at a wavelength of 450 nm.

4 Method-B (Barium Sulfate Weighting Method)

4.1 Principle

After the sodium hydroxide product is dissolved in water, filter out the insoluble matter; add barium chloride solution; barium ions react with sulfate ions to form insoluble barium sulfate; and the sulfate content in the product can be calculated by weighing the quality of barium sulfate.

4.2 Reagents and materials

The reagents and water used in this method, unless otherwise is specified, refer to analytical reagents and Grade-3 water (free of carbon dioxide) specified in GB/T 6682. The standard solutions, preparations and products required in the test, unless otherwise is specified, shall be prepared according to the provisions of GB/T 603.

4.2.1 Hydrochloric acid.

4.2.2 Nitric acid.

4.2.3 Barium chloride ($\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$) solution: 250 g/L. Weigh 25g of barium chloride dihydrate; dissolve in water, and dilute to 100mL.

4.2.4 Silver nitrate solution: 5g/100mL. Weigh 5g of silver nitrate; dissolve it in a small amount of water; add 5 mL of nitric acid (4.2.2); and dilute with water to 100mL.

4.2.5 Methyl orange indicator solution: 1g/L.

4.3 Instruments and equipment

General laboratory instruments and the following equipment.

4.3.1 Porcelain crucible: 30mm×30mm.

4.3.2 Oven.

4.3.3 High temperature furnace.

4.4 Analytical procedures

This is an excerpt of the PDF (Some pages are marked off intentionally)

Full-copy PDF can be purchased from 1 of 2 websites:

1. <https://www.ChineseStandard.us>

- SEARCH the standard ID, such as GB 4943.1-2022.
- Select your country (currency), for example: USA (USD); Germany (Euro).
- Full-copy of PDF (text-editable, true-PDF) can be downloaded in 9 seconds.
- Tax invoice can be downloaded in 9 seconds.
- Receiving emails in 9 seconds (with download links).

2. <https://www.ChineseStandard.net>

- SEARCH the standard ID, such as GB 4943.1-2022.
- Add to cart. Only accept USD (other currencies - <https://www.ChineseStandard.us>).
- Full-copy of PDF (text-editable, true-PDF) can be downloaded in 9 seconds.
- Receiving emails in 9 seconds (with PDFs attached, invoice and download links).

Translated by: Field Test Asia Pte. Ltd. (Incorporated & taxed in Singapore. Tax ID: 201302277C)

About Us (Goodwill, Policies, Fair Trading...): <https://www.chinesestandard.net/AboutUs.aspx>

Contact: Wayne Zheng, Sales@ChineseStandard.net

Linkin: <https://www.linkedin.com/in/waynezhengwenrui/>

----- The End -----