

ICS 71.060.50

CCS X35



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 13025.8-2012

Replacing GB/T 13025.8-1991

General test method in salt industry - Determination of sulfate

制盐工业通用试验方法 硫酸根的测定

Issued on: June 29, 2012

Implemented on: December 1, 2012

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine of the People's Republic of China;
Standardization Administration of China**

Table of Contents

- 1 Scope
- 2 Normative References
- 3 Gravimetric Method
 - 3.2 Reagents
 - 3.3 Apparatus
 - 3.3.1 Thermostat drying oven
 - 3.3.2 Glass crucible no. 4
 - 3.4 Analytical procedure
- 4 Volumetric Method (EDTA Complex Titration Method)
 - 4.2 Reagents
 - 4.2.8 Eriochrome black T indicator Weigh
 - 4.4 Analytical procedure

Foreword

This Standard belongs to a complete group of general test methods in salt industry; the complete group comprises the following 13 parts at present; and other test method standards will be developed in the future, if necessary. -- GB/T 13025.1 General Test Method in Salt Industry - Determination of Grain Size -- GB/T 13025.2 General Test Method in Salt Industry - Determination of Whiteness -- GB/T 13025.3 General Test Method in Salt Industry - Determination of Moisture -- GB/T 13025.4 General Test Method in Salt Industry - Determination of Insoluble Matter -- GB/T 13025.5 General Test Method in Salt Industry - Determination of Chloride Ion -- GB/T 13025.6 General Test Method in Salt Industry - Determination of Calcium And Magnesium -- GB/T 13025.7 General Test Method in Salt Industry - Determination of Iodine -- GB/T 13025.8 General Test Method in Salt Industry - Determination of Sulfate -- GB/T 13025.9 General Test Method in Salt Industry - Determination of Lead -- GB/T 13025.10 General Test Method in Salt Industry - Determination of Ferrocyanide -- GB/T 13025.11 General Test Method in Salt Industry - Determination of Fluoride -- GB/T 13025.12 General Test Method in Salt Industry - Determination of Barium -- GB/T 13025.13 General Test Method in Salt Industry - Determination of Arsenic This Standard is the 8th part of GB/T 13025. This Standard was drafted in accordance with the rules given in GB/T 1.1-2009. This Standard replaces GB/T 13025.8-1991, General Test Method in Salt Industry - Determination of Sulfate Ion. Compared with GB/T 13025.8-1991, the main technical differences of this Standard, except editorial modifications, are as follows: -- it cancels the photometric analysis method. This

Standard was proposed by China National Light Industry Council and shall be under the jurisdiction of the National Standardization Technical Committee of the Salt Industry. The drafting organizations of this Standard. National Standardization Center of Sea- lake Salt and Henan Province Supervision and Testing Station of Salt Products. The drafters of this Standard. Tong Yunkun, Xu Suling, Yu Xiuling and Yuan Huijie. The previous edition replaced by this Standards is as follows: -- GB/T 13025.8-1991. General Test Method in Salt Industry - Determination of Sulfate

1 Scope

GB/T 13025.8-2012 is the Chinese national standard on general test method in salt industry - determination of sulfate, in the field of chemical technology. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 29 June 2012 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 December 2012. Classification: ICS 71.060.50, CCS X35. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This Part of GB/T 13025 specifies the method for determination of sulfate in salt products and salt chemical products. This Standard applies to the determination of sulfate in salt products and salt chemical products as well as their raw materials.

2 Normative References

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

GB/T 6682-2008 Water for Analytical Laboratory Use - Specification and Test Methods

3 Gravimetric Method

3.1 Principle Adjust the sample solution to acidity; add barium chloride solution to form barium sulfate precipitation; filter, wash, dry and weigh the precipitate; and calculate the content of sulfate.

3.4 Analytical procedure

3.4.1 Sample preparation Weigh 25 g of sample crushed to below 2 mm (it is not necessary

to crush magnesium chloride samples), accurate to

0.001 g; place into a 400 mL beaker; add 200 mL of water; heat to nearly boiling until the sample is completely dissolved; transfer to a 500 mL volumetric flask after cooling; add water to dilute to scale before shaking up and filtering. When the content of the substance to be tested in the sample is too high, it can be diluted properly and then measured.

3.5 Result calculation The content of sulfate in the sample is calculated by mass fraction; the numerical value is expressed in percentage (%); and it is calculated in accordance with Formula (1). In the formula.

4 Volumetric Method (EDTA Complex Titration Method)

4.1 Principle Barium and sulfate in the sample produces indissolvable barium sulfate precipitate; use ethylene diamine tetraacetic acid disodium (EDTA) standard solution for titration for the surplus barium ion; determine sulfate indirectly.

4.2 Reagents

4.2.1 Specifications of reagents Unless otherwise specified, only reagents identified as Analytical Grade and Grade 3 water as specified in GB/T 6682-2008 are used in the analysis.

4.2.6 Ethylene diamine tetraacetic acid disodium (EDTA) standard titration solution Preparation. weigh

37.3 g of ethylene diamine tetraacetic acid disodium; dissolve in 5 L of water; shake up; store in a reagent bottle for standby.

4.2.7 Barium chloride standard solution Preparation. the same as 3.2.3. Standardization. draw

5.00 mL of barium chloride standard solution (4.2.7); store in a 150 mL beaker; add 5 mL of ethylenediaminetetraacetic acid disodium magnesium salt hydrate (Mg-EDTA) solution (4.2.4), 10 mL of absolute ethanol, 5 mL of ammonia- ammonium chloride buffer solution and 4 drops of eriochrome black T indicator; use EDTA standard titration solution (4.2.6) for titration until the solution turns from wine red to bright blue; record the volume of EDTA standard titration solution consumed, V_1 .

4.2.8 Eriochrome black T indicator Weigh

0.2 g of eriochrome black T and 2 g of hydroxylamine hydrochloride; dissolve in absolute ethanol; use absolute ethanol to dilute to 100 mL; store in a brown bottle.

4.3 Apparatus General laboratory apparatus.

4.4 Analytical procedure

4.4.1 Preparation Weigh 25 g of sample crushed to below 2 mm (it is not necessary to crush magnesium chloride samples), accurate to

0.001 g; place into a 400 mL beaker; add 200 mL of water. Heat to nearly boiling until the sample is completely dissolved; transfer to a 500 mL volumetric flask after cooling; add water to dilute to scale before shaking up; and filter if necessary. When the content of the substance to be tested in the sample is too high, it can be diluted properly and then measured.