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HG

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

HG/T 2566-2014

Barium hydroxide for industrial use

工业氢氧化钡

(English Translation)

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1 Scope

This Standard specifies the requirements, test methods, inspection rules, marking, labeling, packaging, transportation, and storage for barium hydroxide for industrial use.

This Standard is applicable to the barium hydroxide for industrial use. The product is primarily used in petroleum processing, the refining of animal and vegetable oils, fine chemicals, household chemicals, and the production of other barium salts.

2 Normative References

The following documents are indispensable for the application of this document. In terms of references with a specified date, only the version with that specific date is applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB 190 Packing symbol of dangerous goods GB/T 191-2008 Packaging - Pictorial marking for handling of goods GB/T 3049-2006 Chemical products for industrial use - General method for determination of iron content - 1,10-Phenanthroline spectrophotometric method GB/T 6678 General principles for sampling chemical products GB/T 6682-2008 Water for analytical laboratory use - Specification and test methods GB/T 8170 Rules of rounding off for numerical values & expression and judgement of limiting values GB 12268-2012 List of dangerous goods HG/T 3696.1 Inorganic chemicals for industrial use - Preparations of standard and reagent solutions for chemical analysis - Part 1: Preparations of standard volumetric solutions HG/T 3696.2 Inorganic chemicals for industrial use - Preparations of standard and reagent solutions for chemical analysis - Part 2: Preparations of standard solutions for impurity HG/T 3696.3 Inorganic chemicals for industrial use - Preparations of

standard and reagent solutions for chemical analysis - Part 3: Preparations of reagent solutions

3 Molecular Formula and Relative Molecular Mass

Molecular formula. $\text{Ba}(\text{OH})_2 \cdot 8\text{H}_2\text{O}$ Relative molecular mass. 315.39 (based on 2011 international relative atomic masses)

4 Requirements

4.1

Appearance. White crystals or crystalline powder.

4.2

The barium hydroxide for industrial use shall be inspected in accordance with the test methods specified in this Standard, and shall comply with the technical requirements listed in

Table 1.

Table 1 -- Technical Requirements

5.1 General Provisions

Unless otherwise specified, the reagents and water used in this Standard refer to analytical grade reagents and Grade 3 water as specified in GB/T 6682-2008. Unless otherwise specified, the standard volumetric solutions, standard solutions for impurity, and reagent solutions used in the tests shall be prepared in accordance with the provisions of HG/T 3696.1, HG/T 3696.2, and HG/T 3696.3.

5.2 Visual Inspection

The appearance shall be determined by visual inspection under natural light.

5.3.1 Summary of method

Dissolve the specimen in an appropriate amount of water, and titrate with a standard volumetric solution of hydrochloric acid using phenolphthalein as the indicator. Calculate the barium hydroxide content based on the volume of hydrochloric acid consumed.

5.3.2 Reagents

5.3.2.1

Standard volumetric solution of hydrochloric acid. $c(\text{HCl}) \sim 1 \text{ mol/L}$.

5.3.2.2

Phenolphthalein indicator solution. 10 g/L.

5.3.2.3

Carbon dioxide-free water.

5.3.3 Analytical procedures

Weigh approximately 4 g of the specimen to the nearest 0.0002 g. Place it in a 250 mL conical flask and add 50 mL of carbon dioxide-free water to dissolve. Add 2 drops of phenolphthalein indicator solution, and immediately titrate with a standard volumetric solution of hydrochloric acid until the red color disappears, marking the endpoint.

Retain this solution; this is test solution A, used for the determination of barium carbonate content.

5.3.4 Result calculation

The main content is expressed as the mass fraction (w_1) of barium hydroxide octahydrate $[\text{Ba}(\text{OH})_2 \cdot 8\text{H}_2\text{O}]$ and calculated according to Formula (1).

Where.

V -- The numerical value of the volume of standard volumetric solution of hydrochloric acid consumed for the titration test solution, in milliliters (mL);

c -- The exact concentration value of the standard volumetric solution of hydrochloric acid, in moles per liter (mol/L);

m -- The numerical value of the mass of the specimen, in grams (g);

M -- The numerical value of the molar mass of barium hydroxide octahydrate $[\frac{1}{2}\text{Ba}(\text{OH})_2 \cdot 8\text{H}_2\text{O}]$, in grams per mole (g/mol) ($M=157.7$).

The arithmetic mean of the results of parallel determinations is taken as the determination result.

The absolute difference between the results of two parallel determinations is not greater than 0.3%.

5.4.1 Summary of method

Titrate with a standard volumetric solution of hydrochloric acid using bromophenol blue as the indicator solution, and calculate the barium carbonate content based on the volume of standard volumetric solution of hydrochloric acid consumed.

5.4.2 Reagents

5.4.2.1

Standard volumetric solution of hydrochloric acid. $c(\text{HCl}) \sim 0.2 \text{ mol/L}$.

5.4.2.2

Bromophenol blue indicator solution. 0.4 g/L .

5.4.3 Instruments

Micro-burette. with a graduation value of 0.02 mL .

5.4.4 Analytical procedures

Add 10 ~ 12 drops of bromophenol blue indicator solution to test solution A (see 5.3.3). Using a micro-burette, titrate with a standard volumetric solution of hydrochloric acid until the solution changes from blue-violet to yellow and the color remains stable for 30 s; this marks the endpoint.

5.4.5 Result calculation

The barium carbonate content is expressed as the mass fraction (w_2) of barium carbonate (BaCO_3) and calculated according to Formula (2).

Where.

V -- The numerical value of the volume of standard volumetric solution of hydrochloric acid consumed for the titration test solution, in milliliters (mL);

c -- The exact concentration value of the standard volumetric solution of hydrochloric acid, in moles per liter (mol/L);

m -- The numerical value of the mass of the test portion (see 5.3.3), in grams (g);

M -- The numerical value of the molar mass of barium carbonate ($1/2\text{BaCO}_3$), in grams per mole (g/mol) ($M=98.65$).

The arithmetic mean of the results of parallel determinations is taken as the determination result.

The absolute difference between the results of two parallel determinations is not greater than 0.3%.

5.5.1 Summary of method

Chloride in the sample reacts with the added silver nitrate solution to form turbidity; the chloride content is assessed based on the degree of turbidity.