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

GB 12594-2008

Working chemical - Potassium bromate

工作基准试剂 溴酸钾

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Foreword

The standard Chapter 4, Section

5.2.2 are mandatory, other provisions are recommended. This standard replaces GB 12594-1990 "job reference reagent (capacity) of potassium bromate" Compared with GB 12594-1990, the main changes as follows:

- Standard name was changed to "work reference reagent potassium bromate";
- Modify the Content Measurement (1990 version 4.1, this version 5.3). The standard proposed by China Petroleum and Chemical Industry Association. This standard by the National Standardization Technical Committee Chemistry Chemicals Branch (SAC/TC63/SC3) centralized. This standard is drafted by: Beijing Institute of chemical reagents. The main drafters of this standard. Han Baoying, strong Jing Lin. This standard replaces the standards previously issued as follows:
- GB 12594-1977, GB 12594-1990. Working Standard reagent potassium bromate
Warning. some of the test procedure specified in this standard can lead to dangerous situations, the user has the responsibility to take appropriate safety and health practices.
Molecular formula. KBrO_3

3 Molecular weight. 167.00 (according to 2005 international relative atomic mass).

1 Scope

China's mandatory national standard for potassium bromate as a working chemical. Potassium bromate is the standard of bromatometry: acidified in the presence of bromide it generates bromine quantitatively, and that bromine brominates or oxidises the substance

being determined, which is how phenols, aromatic amines, hydrazine, antimony and arsenic are titrated. Like potassium iodate it is preferred because the reactive species is unstable and the solid is not, so the reagent is generated at the moment it is needed. Its other history is worth knowing: it was for decades the flour improver of the baking industry and has been withdrawn from that use in most countries as a suspected carcinogen, which is why an analytical laboratory now handles it with more care than its analytical role alone would suggest. The standard specifies the requirements, the impurity limits and the test methods.

This standard specifies the operating reference reagent potassium bromate traits, specifications, testing, packaging and inspection rules and signs. This standard applies to titration analysis work reference reagent potassium bromate test.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard. Preparation of

GB/T 601 chemical reagent standard titration solution

GB/T 602 Determination of impurities in chemical reagents prepared standard solution (GB/T 602-2002,

ISO 6353-1. 1982, NEQ) with

GB/T 603 chemical reagent test method Preparations of articles (GB/T 603-2002,

ISO 6353-1 with. 1982, NEQ)

GB/T 609 chemical reagent - General method for determination of total nitrogen (GB/T 609-2006, ISO 6353-1. 1982, NEQ)

GB/T 6682 analytical laboratory use specifications and test methods (GB/T 6682-2008, ISO 3696. 1987, MOD)

GB/T 9724 General rule for determination of pH chemical reagent (GB/T 9724-2007, ISO 6353-1. 1982, NEQ)

GB/T 9728 General method for determination of chemical reagents sulfate (GB/T 9728-2007, ISO 6353-1. 1982, NEQ)

GB/T 9729 General method for determination of chloride Chemicals (GB/T 9729-2007, ISO 6353-1. 1982, NEQ)

GB/T 9739 General method for determination of iron chemical reagents (GB/T 9739-2006, ISO 6353-1. 1982, NEQ) Determination of working reference reagent content

GB 10737-2007 General Weighing potentiometric titration

3 Characters

This reagent is a white crystalline powder, soluble in water, almost insoluble in ethanol. And organics, sulfides or other reducing substances mixing and grinding, Violent explosion can occur.

4 Specification

Potassium bromate as shown in Table 1. Table

5 Test

5.1 General provisions Unless specified otherwise in this chapter, the use of standard titration solution, standard solution, preparations and products, according to GB/T 601, GB/T 602, Regulations preparation, test water should be consistent with GB/T 6682 specifications in three water samples according to precise weighing 0.01g, the use of GB/T 603's Solution "%" are represented by the mass fraction.

5.2 Content Measured according to the provisions of GB 10737-2007.

5.2.1 thiosulfate standard titration solution of potassium dichromate titration Standards Weigh 0.15g at $120\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ drying to constant reference material potassium dichromate, and accurate to 0.00001g, placed in a reaction flask, It was dissolved in 25mL water. Add 2g of potassium iodide and 15mL sulfuric acid solution (20%). Shake, in the dark place 10min, add water 150mL (No more than $10\text{ }^{\circ}\text{C}$), with 213 platinum electrode as the indicator electrode with a 212-type saturated calomel electrode as reference electrode, sodium thiosulfate standard droplet Given solution [Ba ($\text{Na}_2\text{S}_2\text{O}_3$) = 0.1mol/L] titrated to the end point. Weighing sodium thiosulfate standard titration solution should be accurate to 0.0001g. While doing the blank test. Determination

5.2.2 Content Weigh 0.1g sample was measured after the loss on drying to the nearest 0.00001g, placed in a reaction flask, dissolved in 25mL water. Plus 3g of iodine Potassium and 5mL hydrochloric acid solution (20%). Shake, followed by the same measuring method and measuring 5.2.1.5.2.1 5.2.2, use the same Sets of electrodes. The mass fraction of potassium bromate, the value in the "%" means, according to equation (1). (1) Where. Content W_b

--- potassium dichromate standard substance (mass fraction), the value to "%" means; Numerical M_G

--- potassium bromate molar mass in grams per mole (g/mol) [$M(1/6\text{KBrO}_3) = 27.83$]; Numerical M_B

--- molar mass of potassium dichromate standard material in units of grams per mole

(g/mol) $[M(1/6K_2Cr_2O_7) = 49.03]$. Potassium density of 3.27g/cm³, potassium dichromate density of 2.69g/cm³. Determined according to the provisions of GB/T 9724's.

5.4 Clarity test Clarity Standard No.

2 Weigh 6g sample was dissolved in 100mL of water, turbidity is not greater than HG/T 3484 stipulated.

5.5 Loss on drying Weigh 1.5g sample, accurate to 0.0001g, has been placed in the weighing bottle at $180\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ constant, the electricity in the $180\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ Oven dried to constant weight. Samples retained after constant for determination. Loss on drying 1, the value in the "%" means, according to equation (2). $100(2)$ Where.

5.6 Chloride and chlorate Weigh 1g sample was dissolved in 15mL of water was added dropwise sulfuric acid (about 20mL) to a solution of colorless, slowly heated to boiling 2min, excess Sulfur dioxide escapes, cooling, 50mL of nitric acid solution (25%), the solution was heated to colorless, washed with a little water bottle wall, heating was continued 15min, cooled, diluted to 100mL. Take 5mL, diluted to 20mL, determined according to the provisions of GB/T 9729's. The turbidity of the solution was not be Larger than the standard turbidity solution. Standard preparation turbid solution is to take the ratio of 0.015mg containing chloride (Cl) standard solution was diluted to 20mL, at the same time with the same volume of test solution The same treatment.

5.7 bromide 6g weighed sample was dissolved in 85mL of hot water, cooling, 0.5mL sulfuric acid solution (20%), shake for 30min. Solution Yellow No deeper than the standard colorimetric solution. Preparation of standard colorimetric solution containing 0.25mg is to take bromide (Br) standard solution and 1g sample, and the sample while the same treatment.

5.8 sulfate Weigh 1g sample, slowly added to 20mL hydrochloric acid solution (20%), evaporated on a water bath, plus 10mL hydrochloric acid solution (20%), steamed dry. The residue was dissolved in 20mL water, filtered, take 10mL, diluted to 20mL, determined according to the provisions of GB/T 9728's. The turbidity of the solution was No larger than a standard turbidity solution. Standard preparation turbid solution is to take the ratio of 0.025mg containing sulfate (SO₄) standard solution was diluted to 20mL, and with the same volume of test solution When the same treatment.

5.9 total nitrogen content Weigh 1g sample was dissolved in water and diluted to 140mL, determined according to the provisions of GB/T 609's. The yellow solution can not be deeper than the standard ratio Color solution. Preparation of the standard developing solution containing 0.01mg ratio is taken of nitrogen (N) standard solution, the same treatment simultaneously with the sample.

5.10 Iron