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

GB 1258-2008

Working chemical - Potassium iodate

工作基准试剂 碘酸钾

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Foreword

The standard Chapter 4,

5.2.2 are mandatory, other provisions are recommended. This standard replaces GB 1258-1990 "work reference reagent (capacity) of potassium iodate," compared with GB 1258-1990, major changes as follows:

--- Standard name to "work reference reagent potassium iodate";

--- 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 1258-1977, GB 1258-1990. Working Standard reagent potassium iodate 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. KIO

3 Molecular weight. 214.00 (according to 2005 international relative atomic mass).

1 Scope

China's mandatory national standard for potassium iodate as a working chemical. Potassium iodate is the standard for iodometry, and its usefulness comes from a property the alternative lacks: iodine solutions are unstable, volatile and slowly oxidised by air, so a

standard iodine solution cannot be kept - but potassium iodate is a stable solid that liberates an exactly known quantity of iodine when acidified in the presence of iodide, which means the iodine is generated fresh at the moment of use. That makes it the reference for standardising thiosulfate, and thence for every determination of copper, chlorine, sulfite, peroxide and vitamin C that runs through iodometric titration. It is also the compound used to iodise salt, which is a public health measure rather than an analytical one. The standard specifies the requirements, the impurity limits and the test methods for the working grade.

This standard specifies the reference reagent potassium iodate work traits, specifications, testing, packaging and inspection rules and signs. This standard applies to titration analysis work reference reagent potassium iodate 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 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 General Weighing potentiometric titration

GB 15258 rules for preparation of chemical safety labels

3 Characters

This reagent is a white crystalline powder, soluble in water, soluble in ethanol.

4 Specification

Potassium iodate as shown in Table 1. Table

1 Name reference work Content (KIO₃), /% 99.95 ~ 100.05 pH value (50g/L, 25 °C) 5.0 ~

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.

5.2.1 standard titration with sodium thiosulfate solution titration standard potassium iodate Weigh 0.1g has $180\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ constant weight standard substance potassium iodate, accurate to 0.00001g, placed in a reaction flask, is dissolved 25mL water, add 3g of potassium iodide and 5mL hydrochloric acid solution (20%), shaken, placed in the dark for 10min, add 150mL water (not to exceed $10\text{ }^{\circ}\text{C}$), with 213 platinum electrode as the indicator electrode with a 212-type saturated calomel electrode as reference electrode, according to the provisions of GB 10737, with thiosulfate Sulfate standard titration solution [Ba (NaS₂O₃) = 0.1mol/L] titrated to the end point. Weighing sodium thiosulfate standard titration solution, to be precise 0.0001g. Determination

5.2.2 Content

5.2.1 Determination of the same, with the measurement sample instead of the standard material loss after drying. The mass fraction of potassium iodate, the value in the "%" means, according to equation (1). (1) Where. B

--- material content standard potassium iodate (mass fraction), the value to "%" means; Measured according to the provisions of GB 9724.

5.4 Clarity test Clarity Standard No.

2 Weigh 5g 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 drying for constant determination. Loss on drying mass fraction of 1, "%" means, according to equation (2). 100 (2) Where.

5.6 Chloride and chlorate Weigh 1g sample was dissolved in 15mL of warm water, constantly shaking dropwise sulfuric acid (about 20mL) to clarify the solution, heat and cook slowly Boiling, excess sulfur dioxide to escape, cooling, 5mL and 10mL of ammonia water, was added dropwise with stirring 15mL silver nitrate solution (50g/L), Filtered, washed, and the filtrate and washings were combined, diluted to 100mL. Take 20mL, plus 5mL nitric acid solution (25%), shake for 10min. The turbidity of the solution was not greater than the standard turbidity solution. Standard preparation turbid solution is to take the ratio of 0.01mg containing chloride (Cl) standard solution, add 15mL water, 1mL ammonia, 5mL nitric acid Solution (25%) and 1mL silver nitrate solution (50g/L), was diluted to 25mL, and the same volume of test solution placed simultaneously turbidimetric 10min.

5.7 iodide 5g samples were weighed, dissolved in 75mL of water heating, cooling, 0.5mL sulfuric acid solution (20%), extracted with 10mL chloroform, Still stratification. The organic layer is red it can not be deeper than the standard colorimetric solution. Preparation of standard color solution than 0.1g sample is taken and containing 0.05mg iodide (I) standard solution, and treated in the same sample at the same time.

5.8 sulfate Weigh 0.5g sample was added 5mL hydrochloric acid, evaporated on a water bath, add 2mL of hydrochloric acid, and then evaporated to dryness. Repeat process to white residue, residue Residue was dissolved in 15mL of water (filtered if necessary), measured according to GB 9728 regulations. The turbidity of the solution was not greater than the standard turbidity solution. Standard preparation turbid solution is to take the ratio of 0.015mg containing sulfate (SO_4) standard solution, and treated in the same sample at the same time.

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 0.02mg ratio is taken of nitrogen (N) standard solution, the same treatment simultaneously with the sample.

5.10 Iron Weigh 1g sample, add 2 drops of sulfuric acid and hydrochloric acid 10mL, on the steam bath to near dryness, treated with 10mL of hydrochloric acid to the residue was repeatedly changed White, soluble in water (filtered if necessary), diluted to 15mL, with aqueous ammonia solution (10%) and the solution was adjusted to pH 2, according to GB/T 9739 regulations Determination. The red solution should not be deeper than the standard colorimetric solution. Preparation of the standard solution is to take the colorimetric containing 0.002mg of iron (Fe) standard solution, the same treatment simultaneously with the sample.