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

GB 10732-2008

Primary chemical - Potassium chloride

第一基准试剂 氯化钾

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Foreword

The standard Chapter 4, Section 5.3.3,

5.3.4.1 are mandatory, other provisions are recommended. This standard replaces GB 10732-1989 "first reference reagent (capacity) potassium chloride", compared with GB 10732-1989, the main changes as follows:

- Standard name changed to "first reference reagent potassium chloride";
- Increasing the normative references (1989 edition Chapter 2, Section 2 of this edition);
- Modify the description of the determination of the principles of the (1989 version 4.1.1, this version 5.3.1);
- Modify the constant current coulometric apparatus diagram (1989 version 4.1.3.4, this edition 5.3.2.4);
- Improve titration steps (1989 version 4.1.4.3, this edition 5.3.3.4);
- Modify the inspection rules (1989 edition Chapter 5, Chapter 6 of this edition);
- Canceled Appendix B, Appendix C (1989 edition Appendix B, Appendix C);
- Increasing the calculation method assay results Uncertainty (edition of Appendix B). This

standard appendix A normative appendix, Appendix B is an informative annex. The standard proposed by China Petroleum and Chemical Industry Association. This standard by the Chemicals Branch of the National Chemical Standardization Technical Committee. This standard is drafted by: China Institute of Metrology, Beijing Institute of Chemical reagents. The main drafters of this standard. FEI brother, Wu Bing, Han Baoying, strong Jing Lin. This standard replaces the standards previously issued as follows:

--- GB 10732-1989. The first reference potassium chloride reagent Molecular formula. KCl Molecular Weight. 74.552 (according to 2005 international relative atomic mass).

1 Scope

China's mandatory national standard for potassium chloride as a primary chemical. In the primary standard family potassium chloride does two jobs, and they are unrelated to each other. It is the reference for argentometric titration, the standardisation of silver nitrate against which chloride determinations are made, because it can be dried and weighed with high accuracy and reacts stoichiometrically. And it is the substance from which the standard solutions for electrical conductivity are made - the conductivity of a potassium chloride solution of defined concentration at defined temperature is the fixed point against which every conductivity meter in the world is calibrated, chosen because the potassium and chloride ions happen to have nearly equal mobilities, which makes the solution's behaviour unusually simple and reproducible. The standard specifies the purity requirements, the drying conditions and the assay for the primary standard grade.

a) high-precision timing constant current source. stability is better than one hundred thousandth of the dynamic characteristics of a good steady flow DC power supply, with $1.0186 \times 1.0186 \times 10\text{mA}$ and 100mA two output current, the current value is determined by the compensation method; the minimum timing resolution 0.1ms , current Timing and synchronization of less than 0.1ms .

b) temperature control standard battery pack. should meet the requirements of JJG153. Range 1V , annual variation of less than $5\mu\text{V}$.

c) Standard resistance. should meet the requirements JJG116 of. Relative uncertainty is generally not more than 3×10^{-6} .

d) direct radiation galvanometer. resistance $< 100\Omega$, critical external resistance $< 1000\Omega$, dividing the value of $< 3 \times 10^{-9}\text{A}$.

5.3.2.5 electrolytic cell apparatus (see Figure 2). An anode compartment (left) and a cathode chamber (right side) is made of quartz glass with a diameter of 50mm , 125mm high cylindrical. With between two chambers Diameter 20mm , glass horizontal length 80mm connections in the tube melting inside back cover sheet respectively No. 2,2,3 glass sand core, thereby forming two Have an intermediate chamber manifold with the piston, and the pressure by pumping nitrogen gas pressurization method the electrolyte solution

out of the intermediate chamber. Small room two sand core The distance between the distance 20mm, two large chamber between the sand core is 40mm. The anode chamber mouth tight with a good pre-treated white rubber Plug 1 is inserted through the stopper rods were anode 2 silver, 3 nitrogen inlet, nitrogen outlet pipe 4, double salt bridge calomel electrode 5, silver indicator electrode rod 6, 7 sample dropper. The bottom of the anode compartment has 20mm long was stirred in a sealed Teflon tube about the magnet 9. The anode chamber and the intermediate chamber Both black and red cloth cover with wrap, in order to avoid decomposition of the reaction product to light. Platinum mesh cathode cathode chamber 10, the bottom of a cast silicone gel Plug 11. Electrolytic cell unit on magnetic stirrer workbench.

Note. Preparation of silicone gel plug Under stirring, a nitric acid solution to 40mL (2mol/L) was added slowly sodium silicate solution (250g/L) until the solution was slightly acidic when heated to boiling, cooled, Into the electrolytic cell cathode chamber, was added slowly under continued stirring sodium silicate solution (250g/L), until the colloid appears. 1

- white rubber plug; 2
- silver bar electrode; 3
- nitrogen inlet; 4
- nitrogen outlet pipe; 5
- double salt bridge SCE; 6
- Silver Slugger indicator electrode; 7
- sample dropper; 8
- sample port; . 9

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.

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 9723-2007 Chemicals flame atomic absorption spectrometry General

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

GB/T 9727 General method for the determination of phosphate chemical reagent (GB/T 9727-2007, 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 9735 General method for determination of heavy metals Chemicals (GB/T 9735-2008, ISO 6353-1. 1982, NEQ)

GB/T 9738 Chemicals water insoluble determination General method (GB/T 9738-2008, 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)

3 Characters

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

4 Specification

Potassium chloride as shown in Table 1. Table

1 Name the first reference Content (KCl), /% 99.98 ~ 100.02 pH value (50g/L, 25 °C) 5.5 ~

5 Test

5.1 Warning Reagents used in this test method are toxic or corrosive, some of the testing process can lead to dangerous situations, the operator should take Appropriate safety and health practices.

5.2 General Provisions Unless specified otherwise in this chapter, the use of reagent purity should be more analytical, standard solution, preparations and products, according to GB/T 602, GB/T 603 provisions of preparation, test water should be consistent with GB/T 6682 specifications in two water samples according to precise weighing 0.01g, used Solution "%" are represented by the mass fraction. High purity nitrogen gas should be used.