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

GB 10730-2008

Primary chemical - Potassium hydrogen phthalate

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Foreword

The standard Chapter 4 5.3.3,

5.3.4.1 are mandatory, other provisions are recommended. This standard replaces GB 10730-1989 "first reference reagent (capacity) of potassium hydrogen phthalate" Compared with GB 10730-1989, Lord To change the following.

- Standard name changed to "first reference reagent potassium hydrogen phthalate";
- 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);
- Modify the sample pre-treatment conditions (1989 version 4.1.4.1, this edition 5.3.3.2);
- Modified after introducing nitrogen loading conditions (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);
- Increasing the content of the calculation method of Uncertainty (Excerpts Appendix B)

was measured;

--- Canceled Appendix B, Appendix C (1989 edition Appendix B, Appendix C). 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 10730-1989. The first reference reagent potassium hydrogen phthalate Molecular formula. $\text{KHC}_8\text{H}_4\text{O}$

4 Molecular Weight. 204.222 (according to 2005 international relative atomic mass).

1 Scope

China's mandatory national standard for potassium hydrogen phthalate as a primary chemical. A primary standard is the substance against which other standards are calibrated, and it sits at the base of a chain of measurement that reaches every analytical laboratory in the country. Potassium hydrogen phthalate is the primary standard for acid-base titration and the reference for pH: it is chosen because it is stable in air, does not absorb water, can be dried without decomposing, has a conveniently high equivalent weight so that weighing errors matter less, and can be purified to a degree that lets its assay be certified to within a hundredth of a per cent. Every alkali solution used in a titration anywhere is ultimately traceable to it. The requirements are therefore about purity, its verification and the uncertainty of the certified value, rather than about the compound's own properties.

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). A cathode compartment (left) and an anode compartment (right) is made of quartz glass with a diameter of 50mm , 125mm high

cylindrical. With between two chambers Diameter 20mm, length 80mm quartz glass tube level connections in the tube melting inside back cover sheet respectively No. 2,2,3 quartz glass sand core, thereby forming Into two intermediate chambers each with a branch of the piston, and the pressure by pumping nitrogen gas pressurization method the electrolyte solution out of the intermediate chamber. Small room The distance between the two sand core distance 20mm, two large chamber between the sand core is 40mm. Tight with a good pre-treated on the cathode chamber opening A white rubber stopper, a glass electrode is inserted through the stopper 2, respectively, a saturated calomel electrode 3, 4 nitrogen inlet, nitrogen outlet pipe 5, surface area 60cm² platinum net cathode 6. The bottom of the cathode compartment 20mm long was stirred in a sealed Teflon tube about the magnet 9, polyethylene Platinum net cathode cover 10 is placed on top. An anode chamber having a 60mm x 70mm silver sheet 8, the bottom agar casting a rubber stopper 7. Electrolytic cell unit on magnetic stirrer workbench.

Note. Preparation of agar plugs Weigh 3g agar, a potassium chloride solution was added 100mL (1mol/L) agar boil until dissolved, hot molding at the bottom of the anode compartment. 1

- white rubber plug; 2
- glass electrode; 3
- saturated calomel electrode; 4
- nitrogen inlet; 5
- nitrogen outlet pipe; 6
- platinum net cathode; 7
- agar stopper; 8
- silver flake anode; . 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 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 9729 General method for determination of chloride Chemicals (GB/T 9729-2007, 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)

GB 15346 chemical reagent packaging and marking

HG/T 3484 standard chemical reagents glass emulsion and clarity standards JJG99 weight JJG116 standard resistor JJG119-2005 Laboratory pH (acidity) meter JJG153 standard battery JJG1006 a standard material specification

3 Characters

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

4 Specification

Potassium hydrogen phthalate as shown in Table 1. Table

1 Name the first reference Content ($\text{KHC}_8\text{H}_4\text{O}_4$), /% 99.98 ~ 100.02 pH value (50g/L, 25 °C) 3.8 ~

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.