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

GB/T 1282-2013

**Chemical reagent -- Phosphoric acid
(English Translation)**

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Foreword

This Standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This Standard replaces GB/T 1282-1996 "Chemical reagent - Phosphoric acid".

Compared with GB/T 1282-1996, main technical changes are as follows:

- modified unit of volatile acid from "mmol/100g" to "mmol/g" (see Clause 4 of this Edition, Clause 4 of Edition 1996);
- increased specification of arsenic guaranteed reagent, analytical reagent from "0.0001%" to "0.00005%"; raised chemical pure specification from "0.0005%" to "0.0001%" (see Clause 4 of this Edition, Edition 4 of Edition 1996);
- increased specification of guaranteed reagent of sodium, potassium, nickel, copper, zinc, cadmium (see Clause 4 of this Edition, Edition 4 of Edition 1996);
- added specification of analytical reagent and chemical pure of sodium, potassium, nickel, copper, zinc, cadmium, lead (see Clause 4 of this Edition);
- increased specification of chemical pure of reducing substance from

"0.05%" to "0.03%" (see Clause 4 of this Edition, Edition 4 of Edition 1996);

-- improved determination method for content (see 5.2 of this Edition, 5.1 of Edition 1996);

-- added determination method for arsenic (see 5.8.2);

-- added determination method of inductively coupled plasma atomic emission spectrometry of sodium, potassium, manganese, nickel, copper, zinc, cadmium and lead (see 5.10.2);

-- improved pressurized ion exchange device (see Annex A of this Edition, Annex A of Edition 1996);

-- deleted specification and determination methods for burning residue, heavy metal (see Clause 4, 5.3 and 5.12 of Edition 1996);

-- deleted chemical analysis determination method for manganese (see 5.11 of Edition 1996).

This Standard uses redrafting method to modify and adopt R22 "phosphoric acid" in ISO 6353-2:1983 "Reagents for Chemical Analysis -- Part 2:

Chemical reagent - Phosphoric acid

Warning - Some test procedures specified in this Standard may result in dangerous conditions. Users are responsible for taking appropriate safety and health measures.

Molecular formula: H_3PO_4

Relative molecular mass: 98.00 (according to 2007 international relative atomic mass)

1 Scope

This Standard specifies shape, specification, test, inspection rules, packaging as well as marks for chemical reagent - phosphoric acid.

This Standard is applicable to inspection of chemical reagent - phosphoric acid.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 601, Chemical reagent - Preparations of reference titration solutions

GB/T 602, Chemical reagent - Preparations of standard solutions for impurity

GB/T 603, Chemical reagent - Preparations of reagent solutions for use in test methods

GB/T 605, Chemical reagent - General method for the measurement of colour

GB/T 610-2008, Chemical Reagent - General Method for the Determination of Arsenic

GB/T 6682, Water for laboratory use - Specifications

GB/T 9723-2007, Chemical Reagent - General Rule for Flame Atomic Absorption Spectrometry Analysis

GB/T 9728, Chemical reagent - General method for the determination of

5.5 Chloride

Weigh 5g (3mL) of sample. Dilute to 20mL. Determine according to provisions of GB/T 9729. Solution turbidity shall not be greater than standard turbidity solution.

Preparation of standard turbidity solution takes chloride (Cl) standard solution that contains following quantities. Perform same processing with sample simultaneously.

Guaranteed reagent: 0.010mg; analytical reagent: 0.015mg; chemical pure: 0.025mg.

5.6 Sulfate

Weigh 5g (3mL) of sample. Dilute to 50mL. Take 10mL (5mL for chemical pure).

Dilute to 20mL. Add 0.5mL of hydrochloric acid solution (20%). Determine according to provisions of GB/T 9728. Solution turbidity shall not be greater than standard turbidity solution.

Preparation of standard turbidity solution takes sulfate (SO₄) standard solution that contains following quantities. Dilute to 20mL. Perform same processing with same volume of sample solution simultaneously.

Guaranteed reagent: 0.01mg; analytical reagent: 0.03mg; chemical pure: 0.05mg.

5.7 Nitrate

Weigh 5g (3mL) of sample. Dilute to 10mL. Add 1mL of sodium chloride solution (100g/L) and 1mL of indigo sodium disulphonate solution [$C(C_{16}H_8N_2Na_2O_8S_2)=0.001$ mol/L]. While shaking, within 10s~15s, add 10mL of sulfuric acid. Place for 10min. Blue of solution shall not be lighter than standard colorimetric solution.

Preparation of standard colorimetric solution takes nitrate (NO₃) standard solution that contains following quantities. Perform same processing with sample simultaneously.

Guaranteed reagent: 0.015mg; analytical reagent, chemical pure: 0.025mg.

5.8.1 Silver diethyldithiocarbamate method (arbitration method)

Weigh 4g (2.4mL) of sample. Dilute to 30mL. Inject into arsenic bottle.

Determine according to provisions of 4.2 in GB/T 610-2008. Purple red of absorbent shall not be darker than standard colorimetric solution.

5.10.1.3 Preparation of test solution

See Annex A for pressurized ion exchange device. Ion exchange column is loaded with strong acid cation exchange resin of which particle diameter is