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

GB/T 17518-2012

Replacing GB/T 17518-1998

**General method for determination of silicon content of
chemical products -- Reduced molybdosilicate
spectrophotometric method**

化工产品中硅含量测定的通用方法 还原硅钼酸盐分光光度法

(English Translation)

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Foreword

This standard rule according to GB/T 1.1-2009 given draft.

This standard replaces GB/T 17518-1998 "General Methods of chemical products Determination of silicon reduction of silicon molybdate salt spectrophotometric Law, "compared with the GB/T 17518-1998, the main technical changes are as follows.

- Remove the ISO foreword (see 1998 edition of the "Foreword ISO ");
- Modify the concentration of sulfuric acid and hydrochloric acid solution is described (see 5.1 and 5.2, 1998 edition of 4.1 and 4.2.);
- Modified silica (SiO_2) in terms of silicon (Si) coefficient (see Chapter 8, Chapter 7, 1998 edition);
- Increasing the linear regression equation calculation method (see 7.3.3 and Chapter 8, 6.3.4 and Chapter 7 of the 1998 edition);
- Delete the words "test report" requirement (see 1998 edition of Chapter 8);
- Delete the original standard in Appendix B, Appendix A to the original standard Appendix B, increasing the informative Appendix A (see Annex A and Annex Record B, 1998 edition of Appendix A and Appendix B).

This standard uses redrafted law revision adopted ISO 6382. 1981 "General method for determination of silicon reduction of salt bare silicon molybdate Law degree. " this standard and ISO 6382. 1981, compared with more adjustment in the structure, listed in Appendix A of this standard and ISO 6382. 1981's Reg number control list.

This standard and ISO 6382. 1981 and the technical differences for the following reasons.

- Increasing the normative references to meet GB/T 1.1-2009 rules for preparation of national standards;
- Modify the concentration of sulfuric acid and hydrochloric acid solution descriptions to

facilitate standard user operations;

--- Modified silica (SiO_2) silicon (Si) in terms of the coefficients, according to the 2009 international relative atomic weight calculation, the coefficient 0.468 to 0.4674;

--- Delete the words "test report" requirement, to suit China's national conditions.

This standard made the following editorial changes.

--- The name of the standard was changed to "General Methods of chemical products Determination of silicon reduction of silicon molybdate salt spectrophotometric method" to suit the States need the chemical industry;

--- Increase the informative Appendix A, the international standard Appendix A to Appendix B, while international standards remove the appendix B.

The standard proposed by China Petroleum and Chemical Industry Association.

This standard by the National Standardization Technical Committee chemistry of sulfur and sulfuric acid Technical Committee (SAC/TC63/SC7) centralized.

This standard was drafted. South of the Academy Group, Jiangsu Province Product Quality Supervision and Inspection Institute, Huaian City Product Quality Supervision, Inspection, Shandong Province Product Quality Supervision and Inspection Institute.

1 Scope

This standard specifies the method for determination of silicon, namely general reduction of silicon molybdate salt spectrophotometric method.

This standard applies to silicon content (in terms of SiO_2) test solution was measured in the range $2\mu\text{g} \sim 200\mu\text{g}$.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated edition applies to this article Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 6682 analytical laboratory use specifications and test methods (GB/T 6682-2008, ISO 3696. 1987, MOD) Principle 3 in the presence of hydrochloric acid, sodium fluoride treatment, so that any form of polysilicon depolymerization.

Masking interfering with boric acid fluoride ion, at a pH of 1.1 ± 0.2 , the formation of the oxidation state (yellow) silicon molybdate.

In the presence of oxalic acid at a sufficiently high acidity sulfuric acid medium, to eliminate interference phosphate, selective reduction of silicon molybdate complex.

The maximum absorption wavelength (about 800nm) at spectrophotometrically measuring the absorbance of the blue complex.

4 General Provisions

This standard reagents, did not indicate when the other requirements, refer to analytical reagent Three water in line with GB/T 6682 provisions Grade secondary distilled water by distillation or quartz apparatus equal purity water, demineralized water is not appropriate. All reagents should be stored in non-silicon material placed (E.g. polyethylene) bottles made.

5 Reagents

5.1

sulfuric acid solution. 13.

Hydrochloric acid solution 5.2. 12.

5.3

boric acid solution. a saturated solution at room temperature (about 48g/L).

5.4

dihydrate oxalic acid solution. 100g/L.

NOTE: This solution inhalation or contact with skin is harmful, should avoid contact with skin and eyes.

5.5

NaF solution. 20g/L, the solution was stored in bottles made of non-silicon material.

NOTE: This solution inhalation, skin contact or ingestion will be poisoned if splashed into the eyes inside, wash immediately with plenty of water and seek medical treatment.

5.6

Dibasic sodium molybdate dihydrate. 140g/L.

Weigh 35g of disodium molybdate dihydrate ($\text{Na}_2\text{MoO}_4 \cdot 2\text{H}_2\text{O}$), with about 50 °C 200mL water dissolved in the polyethylene beaker, cold