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

GB/T 14506.10-2010

Replacing GB/T 14506.10-1993

**Methods for chemical analysis of silicate rocks - Part 10:
Determination of manganese oxide content**

硅酸盐岩石化学分析方法 第10部分：氧化锰量测定

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Foreword

GB/T 14506 "Methods for chemical analysis of silicate rocks" 30 consists of the following components.

- Part 1. Determination of water absorption;
- Part 2. Determination of combined water;
- Part 3. Determination of the amount of silica;
- Part 4. Determination of the amount of aluminum oxide;
- Part 5. Determination of total iron content;
- Part 6. Determination of calcium oxide content;
- Part 7. Determination of the amount of magnesium oxide;
- Part 8. Determination of the amount of titanium dioxide;
- Part 9. Determination of the amount of phosphorus pentoxide;
- Part 10. Determination of the amount of manganese oxide;
- Part 11. Determination of the amount of sodium hydroxide and oxide;
- Part 12. Determination of the amount of fluorine;
- Part 13. Determination of sulfur content;

1 Scope

GB/T 14506.10-2010 is the Chinese national standard on methods for chemical analysis of silicate rocks - part 10: determination of manganese oxide content, in the field of mining and minerals. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 10 November 2010 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and

has been in force since 1 February 2011. Classification: ICS 73.080, CCS D53. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

GB/T 14506 in this section specifies the method for determination of manganese oxide content of silicate rocks. This section applies to the determination of silicate rocks manganese oxide content, is also applicable to the determination of manganese oxide content of soil and stream sediments. Measurement range. potassium periodate spectrophotometry, 0.02% to 2% of manganese oxide. Flame atomic absorption spectrophotometry, 0.005% to 1% Manganese oxide.

2 Normative references

The following documents contain provisions which, through reference

GB/T 14506 in this section constitute provisions of this section. For dated reference documents Member, all subsequent amendments (not including errata content) or revisions do not apply to this section, however, encouraged to reach under this section Parties to research agreement to use the latest versions of these documents. For undated reference documents, the latest versions apply to this section. Laboratory use specifications and test methods GB/T 6682 Analysis

GB/T 14506.1 Silicate rocks - Part 1. Determination of water adsorption

3 Potassium periodate photometric method

3.1 Principle After separation of the silica filtrate with sulfuric smoke rush to make chlorine ions, organic compounds with nitric acid damage; or said sample with sulfuric acid, hydrofluoric acid, nitric Acid treatment. A 5% to 10% sulfuric acid solution, heightening the potassium iodate oxidation of divalent manganese purple permanganate, on a spectrophotometer, Measured at a wavelength of 525nm absorbance, calculate the amount of manganese oxide. The reaction is. $2\text{Mn}^{2+} + 5\text{IO}_4^- + 3\text{H}_2\text{O} \rightarrow 2\text{MnO}_4^- + 5\text{IO}_3^- + 6\text{H}^+$

3.2 Reagents Unless otherwise stated in this section are consistent with the use of analytical reagent and GB/T 6682 analytical laboratory use in the analysis.

3.2.1 High potassium iodate.

3.2.3 hydrofluoric acid ($\rho=1.15\text{g/mL}$). Warning

--- toxic and corrosive hydrofluoric acid, the operation should wear gloves to prevent skin contact.

3.2.4 nitrate ($\rho=1.42\text{g/mL}$).

3.2.5 sulfuric acid (11). Warning

--- improper dilution risk prone

3.2.6 sulfuric acid (595).

3.2.7 phosphoric acid (11).

3.2.8 Preparation of standard solution of manganese oxide.

a) manganese oxide standard stock solution (1.0000mg/mL). Weigh 0.7745g advance by dilute sulfuric acid (3.2.6) and then treated with ethanol (3.2.2) washed, dried high purity manganese metal after placed Beaker, 100mL added sulfuric acid (3.2.6), dissolved by heating, cooled and transferred to 1000mL volumetric flask, dilute to the mark with water, Shake;