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

GB/T 14352.16-2010

Replacing GB/T 14352.16-1993

**Methods for chemical analysis of tungsten ores and
molybdenum ores - Part 16: Determination of selenium content**

钨矿石、钼矿石化学分析方法 第16部分：硒量测定

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Foreword

GB/T 14352 "tungsten ores and molybdenum ores chemical analysis methods," a total of 18 parts.

- Part 1. Determination of tungsten;
- Part 2. Determination of molybdenum;
- Part 3. Determination of copper content;
- Part 4. Determination of lead content;
- Part 5. Determination of the amount of zinc;
- Part 6. Determination of cadmium content;
- Part 7. Determination of cobalt content;
- Part 8. Determination of nickel content;
- Part 9. Determination of sulfur content;
- Part 10. Determination of arsenic content;
- Part 11. Determination of the amount of bismuth;
- Part 12. determination of silver;
- Part 13. Determination of tin;

1 Scope

GB/T 14352.16-2010 is the Chinese national standard on methods for chemical analysis of tungsten ores and molybdenum ores - part 16: determination of selenium 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 73.060, CCS D40. 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.

This section GB/T 14352 provides for tungsten ores and molybdenum ores in the determination of selenium content. This Part applies to tungsten ores and determination of selenium content of molybdenum ore. Measuring range. 2 μ g/g ~ 500 μ g/g of selenium.

2 Normative references

The following documents contain provisions which, through reference

GB/T 14352 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 14505 method for chemical analysis of rocks and ores General rules and regulations Principle

3 Sample with nitric acid - hydrofluoric acid - sulfuric acid decomposition in hydrochloric acid medium, the hypophosphite reducing monomer selenium and arsenic co-precipitation. Solution When pH2 ~ pH3, tetravalent selenium and 3,3'-diaminobenzidine generate yellow complex at pH6 ~ pH9 time can be as benzene, toluene and the like have Quantitative extraction solvent, on a spectrophotometer at the wavelength of 420nm at the absorbance was measured to calculate the amount of selenium.

4 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.

4.1 hypophosphite.

4.2 over anhydrous sodium sulfate.

4.3 Toluene (rho0.863g/mL).

4.4 hydrofluoric acid (rho1.13g/mL), Warning. Toxic and corrosive hydrofluoric acid, the operation should wear gloves to prevent skin contact. Nitrate 4.5 (rho1.40g/mL).

4.6 hydrochloride (rho1.19g/mL).

4.7 hydrochloride (11).

4.8 hydrochloric acid (13, containing a small amount of sodium hypophosphite).

4.9 sulfuric acid (11), Warning. improper dilution risk prone.

4.10 copper sulphate solution (156g/L). Weigh 15.6g of copper sulfate ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$), was added to 4mL selenium sulfate (11), dilute with water to 100mL, dissolved under stirring. 1mL solution containing copper sulfate 100mg.

Note 1. Go selenium sulfate (11) Preparation. Take 100mL sulfuric acid (4.9), was added 5mL hydrobromide ($\rho=1.50\text{g/mL}$), placed on a hot plate heated to take sulfur trioxide After removing smoke, cooled, mixed with an equal volume of water.

Note 2. The copper chloride may also be used.