

ICS 73.060

CCS D40



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

GB/T 14353.13-2014

Replacing GB/T 14353.13-1993

**Methods for chemical analysis of copper ores, lead ores and zinc
ores-Part 13: Determination of gallium content, indium content, thallium
content, tungsten content and molybdenum content**

铜矿石、铅矿石和锌矿石化学分析方法 第13部分：镓量、铟量、铊量、钨量和钼
量测定

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Foreword

GB/T 14353 "copper ores lead ores and zinc ores chemical analysis method" is divided into 18 parts.

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

1 Scope

GB/T 14353.13-2014 is the Chinese national standard on methods for chemical analysis of copper ores, lead ores and zinc ores-part 13: determination of gallium content, indium content, thallium content, tungsten content and molybdenum 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 5

December 2014 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 April 2015. 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.

GB/T 14353 provisions of this part of the simultaneous determination by inductively coupled plasma mass spectrometry gallium content of copper ores lead ores and zinc ores, The amount of indium, thallium content, the amount of tungsten and molybdenum content. GB/T 14353 apply to this part of the copper ore, inductively coupled lead ores and zinc ores in the amount of gallium, indium amount, the amount of thallium, tungsten and molybdenum content in the amount of Plasma mass spectrometry. Measuring range. 0.13 μ g/g ~ 40 μ g/g of gallium, 100 μ g/g of indium 0.01 μ g/g ~, 0.03 μ g/g ~ 40 μ g/g of thallium, 0.08 μ g/g ~ 150 μ g/g of tungsten and 0.18 μ g/g ~ 150 μ g/g of molybdenum. The detection limits. gallium 0.042 μ g/g, indium 0.004 μ g/g, thallium 0.009 μ g/g, tungsten 0.026 μ g/g, molybdenum 0.061 μ g/g.

2 Normative references

The following documents for the application of this document is essential, dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document. 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 nitric acid - hydrofluoric acid - perchloric acid decomposition, aqua regia dissolved salts, polyethylene move 25mL graduated test tube, diluted with water to Mark and shake. An aliquot of the solution was diluted with nitric acid (397). By inductively coupled plasma as the ion source, the sample solution Analyte ionization, the resulting sample ions through the mass analyzer and detector to give mass. According to the ion mass to charge ratio of the element count, the use of Quantitative determination of the calibration curve solution of gallium content, the amount of indium, thallium amount, the amount of tungsten and molybdenum samples.

4 Reagents

Unless otherwise indicated in the analysis are consistent with the use of analytical reagents and GB/T 6682 water analytical laboratory.

4.1 nitric acid ($\rho = 1.42\text{g/mL}$).

4.2 Hydrofluoric acid ($\rho = 1.13\text{g/mL}$). Warning. Toxic and corrosive hydrofluoric acid, the operation should wear gloves corrosion, prevent contact with skin.

4.3 perchloric acid ($\rho = 1.68\text{g/mL}$). Warning. explosive materials, when used carefully!

4.4 hydrochloric acid ($\rho = 1.19\text{g/mL}$).

4.5 aqua regia (hydrochloric acid, nitric acid = 31).

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