

ICS 73.060

CCS D40



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

GB/T 14353.4-2010

Replacing GB/T 14353.4-1993

**Methods for chemical analysis of copper ores, lead ores and
zinc ores - Part 4: Determination of cadmium content**

铜矿石、铅矿石和锌矿石化学分析方法 第4部分：镉量测定

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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 and thallium amount for determination;

1 Scope

GB/T 14353.4-2010 is the Chinese national standard on methods for chemical analysis of copper ores, lead ores and zinc ores - part 4: determination of cadmium 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.

GB/T 14353 provisions of this part of the copper ore, lead ore, zinc ore Determination of cadmium content. This section applies to copper ore, lead ore, zinc ore Determination of cadmium content. Measurement range. Flame atomic absorption spectrophotometry $5\mu\text{g/g}$ ~ $1000\mu\text{g/g}$ cadmium; graphite furnace atomic absorption spectrophotometry $0.1\mu\text{g/g}$ ~ $5\mu\text{g/g}$ cadmium.

2 Normative references

The following documents contain provisions which, through reference

GB/T 14353 in this section constitute provisions of this part of the 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

3 Flame atomic absorption spectrophotometry

3.1 Principle Sample by aqua regia (or hydrofluoric acid, aqua regia, perchloric acid) decomposition in a 5% hydrochloric acid medium (or boric acid - hydrochloric acid medium), the use of air - B Alkyne flame. The wavelength at 228.8nm by atomic absorption spectrophotometer absorbance was measured to calculate the amount of cadmium.

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

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

3.2.3 Hydrofluoric acid ($\rho=1.13\text{g/mL}$), Warning. toxic hydrofluoric acid, is highly corrosive, the operation should wear gloves to prevent skin contact

3.2.4 perchloric acid ($\rho=1.67\text{g/mL}$), Warning. explosive materials, use caution when

3.2.5 aqua regia ($\text{HCl}:\text{HNO}_3 = 3:1$) freshly prepared.

3.2.6 hydrochloric acid (11).

3.2.7 boric acid solution (60g/L).

3.2.8 Cadmium Standard Solution.

a) cadmium standard stock solution [$\rho(\text{Cd}) = 1.00\text{mg/mL}$]. Weigh 1.0000g metal cadmium (99.99%), placed in 250mL beaker, Covered the surface of the dish, along Beibi added 20mL of nitric acid (11), heat gently to dissolve, cooled to room temperature, water to wash away the surface of the dish, transfer Into 1000mL volumetric flask, dilute to the mark, shake;

b) cadmium standard solution [$\rho(\text{Cd}) = 10.0\mu\text{g/mL}$]. Pipette 10.00mL cadmium standard stock solution [3.2.8a)], put 1000mL volumetric flask, dilute to the mark, shake.

3.3 Instrument

3.3.1 atomic absorption spectrophotometer with cadmium hollow cathode lamp.