

ICS 73.060
CCS D40



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

GB/T 14353.5-2010

Replacing GB/T 14353.5-1993

**Methods for chemical analysis of copper ores, lead ores and
zinc ores - Part 5: Determination of nickel content**

铜矿石、铅矿石和锌矿石化学分析方法 第5部分：镍量测定

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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 14353.5-2010 is the Chinese national standard on methods for chemical analysis of copper ores, lead ores and zinc ores - part 5: determination of nickel 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 in this section specifies the method for determination of copper ores lead ores and zinc ores in nickel content. This section applies to copper ore, determination of nickel content of lead ores and zinc ores. Measurement range. 0.002% to 1% nickel.

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 Principle

3 Sample hydrofluoric acid, aqua regia, perchloric acid decomposition with hydrochloric acid, boric acid solution to dissolve salt (or sodium peroxide, sodium hydroxide melt ore, water extraction Extraction, filtration, the precipitate was dissolved in hydrochloric acid) in a 5% hydrochloric acid medium, using air - acetylene flame at the wavelength at 232.0nm by atomic absorption Close spectrophotometer absorbance was measured to calculate the amount of nickel.

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 sodium peroxide.

4.2 sodium hydroxide.

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

4.4 perchloric acid ($\rho=1.67\text{g/mL}$), Warning. This reagent is explosive materials, careful

4.6 aqua regia (HCl HNO₃ = 3 1) freshly prepared.

4.7 hydrochloride (11).

4.8 boric acid solution (60g/L).

4.9 Sodium hydroxide (20g/L).

4.10 Nickel Standard Solution.

a) Nickel standard stock solution [$\rho(\text{Ni}) = 100.0 \mu\text{g/mL}$]. Weigh 0.1000g of nickel [$w(\text{Ni}) = 99.99\%$], placed 100mL beaker covered with a watch glass, along Beibi added 20mL nitric acid solution (11), dissolved by heating, low temperature and evaporated to dryness with a small amount Petri dish washing water, was added 5mL hydrochloric acid ($\rho 1.19\text{g/mL}$), evaporated to dryness and low temperature, repeated once. Hydrochloric acid was added 10mL ($\rho 1.19\text{g/mL}$) dissolved nickel salt, cooling water moved into 1000mL volumetric flask, and dilute to the mark, shake;