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

GB/T 17418.7-2010

**Methods for analysis of noble metals in geochemical samples - Part 7:
Determination of platinum group elements - By nickel sulfide fire
assay-inductively coupled plasma mass spectrometry**

地球化学样品中贵金属分析方法 第7部分：铂族元素量的测定 镍钨试金-电感耦合
等离子体质谱法

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Foreword

GB/T 17418 "analysis of noble metals in geochemical samples Method" is divided into seven parts.

--- Part 1. General rules and regulations;

--- Part 2. platinum and rhodium content - Determination of thiourea enrichment - catalytic polarography;

--- Part 3. Determination of palladium content - Preconcentration by thiourea - Graphite furnace atomic absorption spectrophotometry;

--- Part 4. Determination of the amount of iridium-enriched thiourea - Catalytic spectrophotometry;

--- Part 5. Determination of the amount of ruthenium and osmium distillation - Catalytic spectrophotometry;

--- Part 6. platinum, palladium and gold contents - fire assay enrichment - Emission Spectrometry;

--- Part 7. Determination of nickel sulphide fire assay gold platinum group elements - Inductively Coupled Plasma Mass Spectrometry. This section GB/T 17418 Part 7. Appendix A of this section is normative appendix, Appendix B, Appendix C is informative appendix. This section presents the People's Republic of China Ministry of Land Resources. This part of the National Standardization Technical Committee under the jurisdiction of Land and Resources. This section drafted by: National Geological Experimental Test Center. The main drafters of this section. Li Bing, Yang Hongxia, Liu Wei. Analysis of noble metals in geochemical samples Part 7. Determination of the amount of PGE Nickel Sulfur Assay - Inductively Coupled Plasma Mass Spectrometry Warning

--- Use this section shall be a person experiences regular laboratory work. This section does not point out all possible security asked question. Users have the responsibility to take appropriate safety and health practices and to ensure compliance with the conditions relevant national regulations.

1 Scope

GB/T 17418.7-2010 is the Chinese national standard on methods for analysis of noble metals in geochemical samples - part 7: determination of platinum group elements - by nickel sulfide fire assay-inductively coupled plasma mass spectrometry, 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 D46. 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 17418 provisions of this part of the geochemical samples Nickel Sulfur Assay - Inductively Coupled Plasma Mass Spectrometry (ICP-MS) Determination of Platinum The method of group elements. This section applies to geochemical samples of platinum, palladium, rhodium, determination of iridium, osmium, ruthenium element. Measuring range. See Appendix A.

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this part. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this section, however, encourage the parties to this part of the research agreement Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this section.

GB/T 14506.1 Silicate rocks - Part 1. Determination of water adsorption Laboratory use specifications and test methods

GB/T 6682-2008 Analysis Principle

3 The sample was mixed with a mixed flux at 1100 °C high temperature melting. Precious metals separated by nickel matte capture and other elements, with hydrochloric acid Dissolved nickel matte buckle, leaching, precipitation, and membrane into the sealed sample dissolution vessel, dissolved in aqua regia. Determination of platinum group elements directly on the ICP-MS, in which Osmium determined by isotope dilution. Telluride co-precipitation method can improve the recovery of precious metals and reproducibility.

4 Reagents and solutions

Unless otherwise indicated in the analysis using only recognized as analytical grade reagents and deionized water or equivalent purity water, the water standards in line with GB/T 6682-2008. In the blank test (7.1), if it has detected as part of the test element analytical method using reagent containing more than The detection limit of the content, and make sure that affect the determination of analyte in a sample of low amounts of reagents to be purified.

4.1 Borax. 100 °C baking dehydrated after crush spare.

4.2 lithium tetraborate.

4.3 sodium carbonate.

4.4 nickel carbonyl. size 2.2 μ m ~ 2.8 μ m, before use of platinum group elements were blank test. Warning

--- highly toxic chemicals, carefully operating.

4.5 sublimated sulfur.

4.7 flour. Commercially available plain flour.

4.8 covering agent (11). borax (4.1) and sodium carbonate (4.3) and mix well.

4.9 stannous chloride solution (rho1mol/L). with stannous chloride prepared 1mol/stannous chloride solution (3mol/L HCl medium) L of.

4.10 hydrochloric acid (rho1.18g/mL). excellent pure or high purity.