

ICS 73.060

CCS D46



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

GB/T 17418.2-2010

Replacing GB/T 17418.2-1998

**Methods for analysis of noble metals in geochemical samples - Part 2:
Determination of platinum and rhodium content-Preconcentration by
thiourea-catalytic polarographic method**

地球化学样品中贵金属分析方法 第2部分：铂量和铑量的测定 硫脲富集-催化极谱法

Issued on: November 10, 2010

Implemented on: February 1, 2011

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine of the People's Republic of China;
Standardization Administration of China**

Table of Contents

- 1 Scope
- 2 Normative references
- 4 Reagents

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 2. Catalytic polarographic determination - in this section instead of GB/T 17418.2-1998 "analysis of noble metals in geochemical samples enriched thiourea Platinum and rhodium content. " This section compared with the GB/T 17418.2-1998, the main changes are as follows:
 - Increased warnings;
 - Clearly indicate the mass fraction measurement range;
 - Specification standard noun;
 - Modify simplifies sample scale test solution dispensing scale content;
 - Change some sequence of reagents and samples sulfide bake conditions;
 - Change the sequence number of part reagent;

1 Scope

GB/T 17418.2-2010 is the Chinese national standard on methods for analysis of noble metals in geochemical samples - part 2: determination of platinum and rhodium content-preconcentration by thiourea-catalytic polarographic method, 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 determination of platinum and rhodium. This section applies to the determination of platinum and rhodium-containing platinum group elements in geological materials ultrabasic rocks. Measurement range, mass fraction, said. Platinum 2ng/g ~ 5µg/g; Rh 1ng/g ~ 0.5µg/g.

2 Normative references

The following documents contain provisions which, through reference

GB/T 17418 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.

GB/T 17418.1 precious metal analysis methods General rules and regulations in geochemical samples Principle

3 In addition to the sample by burning sulfur and organic matter, sodium peroxide decomposition, water extraction to sulfuric acid, hydrofluoric acid plus evaporation smoke except silicon. In concentrated sulfuric Acid medium, when heated to 230 °C, thiourea and platinum, palladium, rhodium, iridium and other platinum group elements generated sulfide precipitation to separate with a large base metals. Plus nitric acid - sulfuric acid to dissolve the precipitate and the destruction and removal of the sulfur filter paper, and then lithium sulfate - sodium pyrosulfate melt the platinum group, platinum, rhodium and other elements into Sulfate complex. Platinum and rhodium in sulfuric acid - hexamine - - produce high sensitivity catalytic wave Hydrazine sulfate base solution of ammonium chloride. Peak

potential of about platinum -1.00V (Silver electrode). Platinum in the 0.2ng/mL ~ 2ng/mL range with its derivative peak height is linear. Rhodium peak potential of about It is -1.10V (silver electrode). Rhodium in 0.025ng/mL ~ 0.25ng/mL range, the catalytic current rhodium concentration is not entirely to Linear relationship, use the curve to calculate the concentration. Geochemical samples in the platinum content is generally not high, platinum, rhodium can be continuously measured. Under assay conditions, 10mL volume, less than 100ng platinum rhodium does not interfere with the determination, but a lot of platinum should be separated. 10mgPb, Co, Bi, Mo, 2mgCu, Ni, Cr, 200µgZn, 100µg As, Tl, 10µgAu, Se, Pd, 5µgIr, Os, 2µgRu, 1µgTe, 0.1µgRh not interfere with the determination of platinum. NO₃⁻ serious interference should Rush to make.

4 Reagents

4.1 hydrochloride (rho1.19g/mL). Nitrate 4.2 (rho1.42g/mL).

4.3 sulfate (rho1.84g/mL).

4.4 sulfuric acid (11), warning

--- improper dilution risk prone.

4.5 hydrofluoric acid (rho1.15g/mL), warning of toxic and corrosive hydrofluoric acid

---, the operation should wear gloves to prevent skin contact.

4.6 phosphoric acid (rho1.69g/mL).