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**NONFERROUS METALS INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

YS/T 716.7-2016

**Methods for chemical analysis of low grade blister--Part 7: Determination of platinum and
palladium contents--Fire assay collection-inductively coupled plasma-atomic emission
spectrometric methods and flame atomic absorption spectrometric methods**

**黑铜化学分析方法 第7部分：铂量和钯量的测定 火试金富集-电感耦合等离子体原子
发射光谱法和火焰原子吸收光谱法**

(English Translation)

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Foreword

YS/T 716 "black copper chemical analysis method" is divided into seven parts.

- Part 1. Determination of copper content - Sodium thiosulfate titration;
- Part 2. Determination of gold and silver;
- Part 3. Determination of bismuth, nickel, lead, antimony and zinc - Flame atomic absorption spectrometric method;
- Part 4. Determination of arsenic content - Iodometric method;
- Part 5. Determination of tin content Potassium iodate titration;
- Part 6. Determination of arsenic, bismuth, nickel, lead, antimony, tin and zinc - Inductively coupled plasma atomic emission spectrometry;
- Part 7. Determination of Platinum and Palladium Amount of Fire Assay - Inductively Coupled Plasma Atomic Emission Spectrometry and Flame Atomic Absorption Spectroscopy.

This part is part 7 of YS/T 716.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part of the National Nonferrous Metals Standardization Technical Committee (SAC/TC243) proposed and centralized.

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This part of the method 1 main drafters. Sun Fuhong, Zhang Yanfeng, Chen Qiuyan, Xia Zhenzhu, Xiong Meiyu, Chen Lan, Luan Haiguang, Wang Feihu, Liu Ying, Study on the Effects of Different Concentrations of Nitrogen, Phosphorus and Potassium on the Growth and Development of Rice (*Oryza sativa* L.) Yuan Pengcheng.

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Black copper chemical analysis method Part 7. determination of the amount of platinum and palladium Fire Test Gold Enrichment - Inductively Coupled Plasma Atomic emission spectrometry and flame atomic absorption spectrometry

1 Scope

This part of YS/T 716 specifies the amount of platinum and palladium in black copper.

This part is applicable to the determination of platinum and palladium in black copper. The measurement range is Method 1. platinum 2.0 g/t to 40.0 g/t, palladium 2.0 g/t ~ 180.0 g/t; Method 2. palladium 5.0 g/t to 180.0 g/t.

Part 1 Method 1 is the arbitration method.

2 method 1 fire test gold enrichment - inductively coupled plasma atomic emission spectrometry

2.1 Method Summary

The sample is batched and melted to obtain a suitable mass of precious metal containing lead buckets, and the noble metal is enriched in the granules by ash blowing. Granules Nitric acid and hydrochloric acid were dissolved in the dilute hydrochloric acid medium, the use of inductively coupled plasma atomic emission spectrometry determination of black copper in the amount of platinum and palladium.

2.2 Reagents

Unless otherwise stated, only the reagents and secondary water confirmed to be analytical were used in the analysis.

2.2.1

anhydrous sodium carbonate. industrial pure, powdery.

2.2.2

lead oxide. industrial pure, powder.

2.2.3

Silica. industrial pure, powdery.

2.2.4

borax. industrial pure, powdery.

2.2.5

Starch. powder.

2.2.6

Silver nitrate solution (10g/L).

2.2.7

glacial acetic acid (1 3).

2.2.8

mixed acid. 1 part of nitric acid and 3 parts of hydrochloric acid mix, is now available with.

2.2.9

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

2.2.10

Hydrochloric acid (1 19).

2.2.11

nitric acid (1 4).

2.2.12

Platinum Standard Storage Solution. Weigh 0.1000 g of platinum ($w_{\text{Pt}} \geq 99.99\%$) in a 100 mL beaker, add 20 mL of mixed acid (2.2.8). After dissolving at low temperature, add 5 drops of 200 g/L sodium chloride solution, steam on the water bath to dry, add 20 mL hydrochloric acid (2.2.9) dissolved, into the 100 mL volumetric flask, diluted with water to the mark, mix. 1 mL of this solution contains 1 mg of platinum.

2.2.13

palladium standard storage solution. Weigh 0.1000 g palladium ($w_{\text{Pd}} \geq 99.99\%$) in a 100 mL beaker, add 20 mL of mixed acid (2.2.8). After dissolving at low temperature, add 5 drops of 200 g/L sodium chloride solution, steam on the water bath to dry, add 20 mL

hydrochloric acid (2.2.9) dissolved, into the 100mL volumetric flask, diluted with water to the mark, mix. 1 mL of this solution contains 1 mg of palladium.

2.2.14

Platinum and palladium standard mixed solution. platinum standard storage solution (2.2.12) and palladium standard storage solution (2.2.13)