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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 11066.10-2009

Methods for chemical analysis of gold - Determination of silicon content - Molybdenum blue spectrophotometry

金化学分析方法 硅量的测定 钼蓝分光光度法

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Foreword

GB/T 11066 "Methods for chemical analysis of gold" is divided into 10 sections as follows:

--- GB/T 11066.1 gold chemical analysis method of determining the amount of gold fire assay;

--- GB/T 11066.2 gold chemical analysis of silver content - Flame atomic absorption spectrometry;

--- GB/T 11066.3 gold chemical analysis of iron content by flame atomic absorption spectrometry;

--- Flame atomic GB/T 11066.4 gold chemical analysis of copper, lead and bismuth contents absorption spectrometry;

--- GB/T 11066.5 gold chemical analysis method for determination of atomic silver, copper, iron, lead, antimony and bismuth amount of emission spectrometry;

--- GB/T 11066.6 gold chemical analysis of magnesium, nickel, manganese, and palladium contents - Flame atomic absorption spectrometry;

--- GB/T 11066.7 gold chemical analysis of silver, copper, iron, lead, antimony, bismuth, magnesium, nickel, manganese, palladium, tin and chromium contents - fire Flower atomic emission spectrometry;

--- GB/T 11066.8 gold chemical analysis of silver, copper, iron, lead, antimony, bismuth, magnesium, nickel, manganese, chromium and palladium determining the amount of ethyl acetate Ester extraction - inductively coupled plasma atomic emission spectrometry;

--- GB/T 11066.9 gold chemical analysis method for determination of arsenic and tin hydride generation - atomic fluorescence spectrometry;

--- GB/T 11066.10 Determination of gold chemical analysis of silicon content - Molybdenum

blue spectrophotometric method. This section GB/T Part of 1,011,066. This part is proposed by the China Nonferrous Metals Industry Association. The non-ferrous metal part by the National Standardization Technical Committee. This section is responsible for drafting unit. Chengdu Banknote Printing Company, China Nonferrous Metals Industry Standards and Metrology Institute for Quality. Participated in the drafting of this section. Beijing Nonferrous Metal Research Institute, Jinchuan Group Co., Ltd., Shenyang Mint Institute of Technology, Changchun Gold Institute, Tongling Nonferrous Metals Group Company. The main drafters of this section. Yang Ping, Chen Yun Hung, Yu Shengjie, wide long week, Liu, Dong Liping, Wang Jinping, Jiang Lihong. Methods for chemical analysis of gold Determination of silicon content Molybdenum blue spectrophotometric method

1 Scope

GB/T 11066.10-2009 is the Chinese national standard on methods for chemical analysis of gold - determination of silicon content - molybdenum blue spectrophotometry, in the field of metallurgy. 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 15 April 2009 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 2010. Classification: ICS 77.040.30, CCS H15. 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 11066 provisions of this part of the determination of gold in acid-soluble silicon. This section applies to the determination of the amount of gold in soluble silicon. Measurement range. Si content 0.0010% to 0.0050%.

2 Method summary

Sample mixed acid is dissolved in dilute acid medium, restore gold with hydroxylamine hydrochloride, separating the matrix elements. Forming silicon and silicon molybdenum heteropoly molybdate Acid, sulfuric acid and oxalic acid medium with ascorbic acid silicon-molybdenum blue complex heteropoly acid was measured in a spectrophotometer at a wavelength of 810nm Absorbance at working curve obtained corresponding amount of silicon.

3 Reagents and materials

Unless otherwise indicated in the analysis using only recognized as analytical reagents and secondary distilled water or equivalent purity.

3.1 mixed acid. 1 part of nitric acid (rho about 1.42g/mL, excellent pure) and 3 parts of hydrochloric acid (rho about 1.19g/mL, superior grade pure) and 3 parts water Mix well.

3.2 hydrochloric acid (1 + 1) pure class distinctions.

3.3 hydroxylamine hydrochloride solution (100g/L).

3.4 sulfated (1 + 9) pure class distinctions.

3.5 oxalic acid solution (80g/L).

3.6 ammonium molybdate solution (50g/L). Weigh 50g of ammonium molybdate ((NH4) 6Mo7O24 · 4H2O) was dissolved in 1000mL of water.

3.7 ascorbic acid solution (40g/L). used when the existing service.

3.8 silicon standard stock solution. Weigh 0.1070g of silicon dioxide (SiO2 mass fraction of greater than 99.9%, 120 °C drying 2h to cool to room Temperature), placed in a platinum crucible, 5g of anhydrous sodium carbonate (excellent pure), melting at 950 °C ~ 1000 °C to red transparent. Coolish hot Flooding, cooling. The solution is transferred to 500mL volumetric flask with water to volume, and mix. Immediately transferred to a plastic bottle. This solution containing 1mL 100μg silicon.

3.9 Silicon standard solution. Pipette 10.00mL silicon standard stock solution (3.8) in 250mL plastic flask, dilute to the mark, mix uniform. 1mL solution containing 4μg silicon.

4 Instrument

Spectrophotometer.

5 Sample

Gold prepared crumbs or small pieces with hot hydrochloric acid (3.2) after soaking 15min, washed with ethanol or acetone to dry in a dry It is in the back. Step

6 Analysis

6.1 Sample Weigh 1.00g sample, accurate to 0.0001g.