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

GB/T 11066.2-2008

Replacing GB/T 11066.2-1989

**Methods for chemical analysis of gold - Determination of silver
content - Flame atomic absorption spectrometry**

金化学分析方法 银量的测定 火焰原子吸收光谱法

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Foreword

GB/T 11066 "Methods for chemical analysis of gold" is divided into the following 10 sections.

- 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;
- Flame atomic GB/T 11066.6 gold chemical analysis of iron, nickel, manganese, and palladium absorption spectrometry;
- GB/T 11066.7 gold chemical analysis of silver, copper, iron, lead, antimony, bismuth, palladium, magnesium, tin, nickel, manganese and chromium contents - fire Flower atomic emission spectrometry;
- GB/T 11066.8 gold chemical analysis of silver, copper, iron, lead, antimony, bismuth, palladium, magnesium, nickel, manganese and chromium contents - ethyl acetate Ester extraction -ICP-AES method;
- GB/T 11066.9 gold chemical analysis method for determination of arsenic and tin hydride - atomic fluorescence spectrometry;
- GB/T 11066.10 chemical analysis of gold - Determination of silicon content of silicon molybdenum blue spectrophotometric method. This is Part 2. This Part replaces GB/T 11066.2-1989 "gold chemical analysis by flame atomic absorption spectrometry spectra of

silver." versus GB/T 11066.2-1989 compared to the main changes are as follows:

- Sensitivity of the instrument will be requirements to characteristic concentration;
- Remove the allowable difference, increasing the precision;
- Increased quality assurance and control chapter. 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. This section is drafted. Beijing Mining Research Institute, Chengdu Banknote Printing Company. Participated in the drafting of this section. Shanghai Mint, Shenyang Mint Institute of Technology, Jiangxi Copper Company, Zijin Copper Group, Hubei Daye Nonferrous Metals Group, and the National Gold and Silver Products Quality Supervision and Inspection Center. The main drafters of this section. Fu Bin Nguyen Cinnamon, Lihua Chang, Chen Jie, Wang Zisen, Ma Yubin, Liu Feng. This part certifier. Wang Haoying, Yindong Xia. This part of the standard replaces the previous editions are.

1 Scope

GB/T 11066.2-2008 is the Chinese national standard on methods for chemical analysis of gold - determination of silver content - flame atomic absorption spectrometry, 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 9 June 2008 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 December 2008. Classification: ICS 77.150.99, CCS H68. 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.

This section provides the determination of gold in silver content. This section applies to the determination of gold in silver content. Measurement range. 0.0005% - 0.0400%.

2 Method summary

Sample decomposition with aqua regia, in 3mol/L HCl medium, after separation of gold extracted with ethyl acetate, the aqueous phase is concentrated into hydrochloric acid (1 + 9) to be Test solution, using air - acetylene flame atomic absorption spectrometer the absorbance was measured at a wavelength of 328.1nm silver.

3 Reagents

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

3.1 hydrochloric acid (rho about 1.19g/mL), pure class distinctions.

3.2 HCl (1 + 1). Hydrochloride 3.3 (1 + 9).

3.4 hydrochloride (Ba (HCl) = 3mol/L).

3.5 nitric acid (rho about 1.42g/mL), pure class distinctions.

3.6 nitric acid (1 + 1). Dilute aqua regia 3.7. 1 to 3 parts of nitric acid and hydrochloric acid and 3 parts of water and mix.

3.8 ethyl acetate.

3.9 silver standard stock solution. Weigh 0.1000g metallic silver (mass fraction $\geq 99.95\%$), low-temperature heating was dissolved in 10mL of nitric acid (3.6) Was added 30mL ~ 40mL of hydrochloric acid (3.1), heated to boiling until the precipitate is completely dissolved, cool to room temperature. Moved into 1000mL volumetric flask Hydrochloric acid (3.2) diluted to the mark, and mix. This solution 1mL containing 100 μ g silver.

3.10 Silver standard solution. Pipette 25.00mL silver standard stock solution (3.9) in 200mL volumetric flask, dilute to the mark with hydrochloric acid (3.3) Degree, and mix. This solution 1mL containing 12.5 μ g silver.

4 Instrument

Atomic absorption spectrometer, with a silver hollow-cathode lamp. Under optimum working conditions for those who can reach the following indicators can be used.

--- Characteristic mass concentration. In line with the measurement of a sample solution matrix solution features quality silver concentration should not exceed 0.033 μ g/mL.

--- Linear curve. the mass concentration curve divided into five sections, the difference between the absorbance difference between the highest and the lowest absorbance segment segment The ratio shall be not less than 0.85.

--- Precision. measuring the absorbance of the standard solution 10 times the highest concentration of the standard deviation should not exceed the average absorbance 1%; absorbance measured 10 times the minimum concentration of the standard solution (not a "zero" standard solution), and the standard deviation should not exceed 0.5% of the highest average concentration of the standard solution absorbance.

--- Recommended for P-E1100 atomic absorption spectrometer operating conditions refer to silver as shown in Table 1.