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

YS/T 536.10-2009

Replacing YS/T 536.10-2006

**Methods for chemical analysis of bismuth. Determination of tin
content. Coprecipitation with beryllium-photometric method**

铋化学分析方法锡量的测定铍共沉淀-分光光度法

(English Translation)

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Foreword

YS/T 536-2009 "Method for chemical analysis of bismuth" is divided into 13 parts.

--- YS /536.1 Methods for chemical analysis of bismuth - Determination of copper content - Bis - acetaldehyde T oxalyl Spectrophotometric Method;

--- YS/T 536.2 Methods for chemical analysis of bismuth - Determination of iron content by electrothermal atomic absorption spectrometry;

--- YS/T 536.3 Methods for chemical analysis of bismuth - Determination of antimony content - Malachite green spectrophotometry;

--- YS/T 536.4 Methods for chemical analysis of bismuth - Determination of silver content - Flame atomic absorption spectrometry and electrothermal atomic absorption spectrometry;

--- YS/T 536.5 Methods for chemical analysis of bismuth - Determination of solid-liquid extraction of zinc content - Flame atomic absorption spectrometry;

--- YS/T 536.6 Methods for chemical analysis of bismuth - Determination of lead content by electrothermal atomic absorption spectrometry;

--- YS/T 536.7 Methods for chemical analysis of bismuth arsenic content - Atomic fluorescence spectrometry;

--- YS/T 536.8 Methods for chemical analysis of bismuth chlorine measured amount of mercury thiocyanate spectrophotometry;

--- YS/T 536.9 Methods for chemical analysis of bismuth - Determination of tellurium content of arsenic co-precipitation - oscillopolarographic method;

--- YS/T 536.10 Methods for chemical analysis of bismuth - Determination of tin content of

beryllium coprecipitation - spectrophotometry;

--- YS/T 536.11 Methods for chemical analysis of bismuth mercury content - Atomic fluorescence spectrometry;

--- Determination of YS/T 536.12 Methods for chemical analysis of nickel content of bismuth electrothermal atomic absorption spectrometry;

--- YS/T 536.13 Methods for chemical analysis of bismuth - Determination of cadmium content by electrothermal atomic absorption spectrometry.

This section 10.

The partial replacement of YS/T 536.10-2006 (formerly GB/T 8220.10-1998) "Methods for chemical analysis of bismuth beryllium coprecipitation - spectrophotometer Determination of tin content "of the law. Compared with YS/T 536.10-2006, this section has the following changes.

--- Text format has been modified;

--- Complements the precision, quality assurance and control provisions.

The non-ferrous metal part by the National Standardization Technical Committee and centralized.

This section is Zhuzhou Smelter Group Co., Ltd. is responsible for drafting.

1 Scope

This section provides the determination of bismuth in the amount of tin.

This section applies to the determination of bismuth in the amount of tin. Measurement range (mass fraction). 0.0001% 0.0005%.

2 Method summary

Sample was dissolved in nitric acid. In the presence of EDTA in the ammonia medium, as a carrier with beryllium sulfate precipitation of tin and bismuth separated from the main body. in 0.5mol/L sulfuric acid solution, Sn (IV) and Phenylfluorone - bromo cetyl trimethylamine form a ternary complex in a spectrophotometer wavelength Determination of tin absorbance at 508nm.

3 Reagents

Preparation of the test solution and water are a water, containers used in the experiment were soaked in dilute nitric acid, with a water thoroughly washed.

3.1 Commercially available reagents

3.1.1

nitrate (ρ 1.42g/mL).

3.1.2

sulfate (ρ 1.84g/mL).

3.1.3

ammonia (ρ 0.90g/mL).

3.2 Solution

3.2.1

beryllium sulfate solution (20g/L).

3.2.2

disodium edetate solution (30g/L). Weigh 300g edetate disodium in 1000mL beaker, add water about 800mL, with ammonia (3.1.3) raised completely dissolved, diluted with water to 1000mL.

3.2.3

ammonia water wash (100 + 2).

3.2.4

sulfuric acid (5 + 13).

3.2.5

tartaric acid solution (50g/L).

3.2.6

potassium permanganate solution (20g/L).

3.2.7

ascorbic acid solution (50g/L), the time is now equipped with.

3.2.8

oxalic acid solution (4.5g/L).

3.2.9

bromo cetyl trimethylamine (CTMAB, 6g/L). Weigh 6gCTMAB in 1000mL water and heat gently to dissolve.

3.2.10

Phenylfluorone solution. Weigh 0.15g Phenylfluorone in 500mL anhydrous ethanol, plus 5mL sulfuric acid (3.2.4), shake it dissolve Solution, two days after use. If the insoluble residue was filtered using.

3.3 Standard solution

3.3.1

Storage tin standard solution. Weigh 0.1000g metal tin (tin content $\geq 99.95\%$) in 200mL beaker, 10mL sulfuric acid (3.1.2), heated to dissolve, and evaporated to white smoke, cooled, treated with sulfuric acid (3.2.4) purging the vessel wall, and into a 500mL capacity Bottle, dilute to volume, and mix. This solution 1mL containing 0.2mg tin.

3.3.2

Tin standard solution. Pipette 10.00mL tin standard stock solution (3.3.1) in 1000mL volumetric flask, with sulfuric acid (3.2.4) Dilute Diluted to volume, and mix. This solution 1mL containing 2 μ g tin.

4 Instrument

Spectrophotometer.