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**YS**

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

**YS/T 519.2-2009**

Replacing YS/T 519.2-2006

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**Methods for chemical analysis of arsenic. Part 2: Determination  
of antimony content. Malachite green spectrophotometric  
method**

砷化学分析方法 第2部分：锑量的测定孔雀绿分光光度法  
(English Translation)

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## Table of Contents

|                  |
|------------------|
| Foreword         |
| 1 Scope          |
| 2 Method summary |
| 3 Reagents       |
| 4 Instrument     |
| 5 Sample         |

### Foreword

YS/T 519-2009 "chemical analysis of arsenic" is divided into four parts.

- Part 1. Determination of arsenic content potassium bromate titration;
- Part 2. Determination of antimony content - Malachite green spectrophotometry;
- Part 3. Determination of sulfur content of barium sulfate gravimetric method;
- Part 4. bismuth, antimony, sulfur content - Inductively coupled plasma atomic emission spectrometry.

This section YS/T 519 Part 2.

The partial replacement of YS/T 519.2-2006 (formerly GB/T 4373.2-1984) "Methods for chemical analysis of arsenic malachite green spectrophotometry Determination of antimony content. " Compared with YS/T 519.2-2006, this section has the following changes.

- Sample size proposed new requirements, the specimen shall be subject to an 80-mesh sieve, diameter of not more than 2mm, to sample all through 0.84mm sieve, and then 0.42mm sieve;
- Symmetry like proportions were modified by the press on the screen and under the screen ratio of 3 Weigh, modify according to the actual proportion sieve weighed;
- 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.

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## 1 Scope

YS/T 519 This part specifies the determination of arsenic in antimony content.

This section applies to the determination of arsenic in antimony content. Measuring range. 0.01 to 0.45%.

## 2 Method summary

The sample was dissolved by heating with sulfuric acid after evaporation to near dryness, dissolved in hydrochloric acid and transferred to a volumetric flask, pipette part test solution in a separating funnel, first with chlorine Stannous reduction, then sodium nitrite oxidation to pentavalent antimony at about 1.5mol/L hydrochloric acid solution was added malachite green, extracted with benzene, the organic phase was measured in a spectrophotometer at a wavelength of 625nm absorbance obtained antimony content.

## 3 Reagents

Analysis process unless otherwise specified, all reagents and analytical use distilled water or water of equivalent purity.

### 3.1

sulfuric acid.

Hydrochloride 3.2 (2 + 1).

### 3.3

sodium nitrite solution (100g/L).

### 3.4

urea solution (500g/L).

### 3.5

stannous chloride solution (100g/L). Weigh 10g of stannous chloride, 250mL beaker is placed, was added 67mL of hydrochloric acid ( $\rho=1.19\text{g/mL}$ ) dissolved and transferred to 100mL dropper bottle, dilute with water to 100mL, and mix (available in one to two weeks).

### 3.6

malachite green solution (1g/L). Weigh 0.10g malachite green, placed in 150mL beaker, was added 50mL of ethanol, 50mL water to dissolve Solution, filtered in a brown bottle, and mix.

### 3.7

Antimony standard stock solution. Weigh 0.5000g metal antimony ( $Sb \geq 99.99\%$ ), placed in 250mL beaker, add 10mL sulfuric acid (3.1), cover the surface of the dish, the heating furnace is set to dissolve completely, and heating continued to take fuming sulfuric acid and the solution was evaporated to a volume of about 2mL, remove the cold to room temperature, add a small amount of hydrochloric acid (3.2) dissolved salts and into 1000mL volumetric flask with hydrochloric acid (3.2) and Beibi purged dish surface, incorporated Volumetric flask, diluted with hydrochloric acid (3.2) to the mark, and mix the solution 1mL containing 0.5mg antimony.

### 3.8

Antimony standard solution (0.004mg/mL). Pipette 4.00mL antimony standard stock solution (3.7) in 500mL volumetric flask, hydrochloride (3.2) diluted to the mark, mix 1mL solution containing 4 $\mu$ g antimony.

### 3.9

benzene.

## 4 Instrument

Spectrophotometer.

## 5 Sample

The sample was processed into all over the 0.84mm sieve-like crumbs, and then 0.42mm sieve, the sample points sieve, sieve, respectively, into grinding mouth Bottle, sealed with paraffin. Processing should prevent overheating oxidation.