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**YS**

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

**YS/T 715.1-2009**

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**Methods for chemical analysis of selenium dioxide. Part 1:  
Determination of selenium dioxide content. Sodium thiosulfate  
titration**

二氧化硒化学分析方法 第1部分：二氧化硒量的测定 硫代硫酸钠滴定法  
(English Translation)

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### Foreword

YS/T 715 "selenium dioxide chemical analysis method" is divided into five parts.

- Part 1. Determination of the amount of selenium dioxide, sodium thiosulfate titration;
- Part 2. arsenic, cadmium, iron, mercury, lead content - Inductively coupled plasma atomic emission spectrometry;
- Part 3. Determination of chlorine content of silver chloride turbidimetric method;
- Part 4. residue on ignition - Gravimetric method;
- Part 5. water-insoluble content - Gravimetric method.

This section YS/T Part 1 715.

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

This section is responsible for drafting unit. Tongling Nonferrous Metals Group Holdings Limited.

Participated in the drafting of this section. Guangzhou Research Institute of Nonferrous Metals and Jiangxi Copper Corporation.

### 1 Scope

YS/T of the provisions of section 715 of the method for the determination of selenium dioxide Selenium dioxide content.

This section applies to the determination of selenium dioxide Selenium dioxide amount, measurement range. 96.00% - 99.50%.

### 2 Method summary

Sample was dissolved in water, in 3.6mol/L sulfuric acid medium, sodium thiosulfate standard titration solution titration, towards the end of potassium iodide, Precipitated iodine

with starch as indicator, titration to the blue disappeared as the end point.

### 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

hydrochloride ( $\rho$ 1.19g/mL).

Nitrate 3.2 ( $\rho$ 1.42g/mL).

#### 3.3

sulfate ( $\rho$ 1.84g/mL).

#### 3.4

sulfate (1 + 1).

#### 3.5

sulfate (1 + 4).

#### 3.6

potassium iodide solution (50g/L).

#### 3.7

starch solution (5g/L).

#### 3.8

sodium thiosulfate standard titration solution [ $\text{Ba}(\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}) = 0.1\text{mol/L}$ ].

##### 3.8.1 Preparation

Weigh 25g of sodium thiosulfate ( $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$ ) into 500mL beaker was added 0.2g of anhydrous sodium carbonate, cooled with boiled After dissolved in distilled water, filtered in 1000mL volumetric flask, dilute to the mark with distilled water and shake above. Calibration week later.

##### 3.8.2 Calibration

Weigh 0.18g (accurate to 0.0001g) at  $120^\circ\text{C} \pm 2^\circ\text{C}$  drying to constant weight of potassium dichromate reagent reference work, put iodine bottle, The water dissolved in 25mL, 20mL plus 2g of potassium iodide and sulfuric acid solution (3.5); shaken, placed in dark place for 10min. Adding 150mL of water, with a good preparation of standard solution of sodium thiosulfate (3.8) titration, overtime near the end 5mL starch indicator solution (3.7) and continue titration to the solution from blue Color to bright green. While doing the blank test.

According to equation (1) to calculate the actual concentration of sodium thiosulfate standard solution.

Where.

Ba --- sodium thiosulfate standard solution actual concentration units per liter (mol/L);

Vp 1 --- titration consumption of sodium thiosulfate standard solution volume, in milliliters (mL);

2 --- blank test volume Vp consumption of sodium thiosulfate solution in milliliters (mL);

Molar mass M --- potassium dichromate, expressed in grams per mole (g/mol),