

ICS 77.120.99
CCS H 14;D43

YS

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

YS/T 555.4-2009

Replacing YS/T 555.4-2006

**Methods for chemical analysis of molybdenum concentrate.
Determination of tin content. Atomic fluorescence spectrometry**

钼精矿化学分析方法锡量的测定原子荧光光谱法

(English Translation)

Issued on: December 4, 2009

Implemented on: June 1, 2010

Issued by: Ministry of Industry and Information Technology

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Foreword

YS/T 555 "Molybdenum concentrate chemical analysis method" includes 11 parts.

Methods for chemical analysis of molybdenum concentrates - Determination of molybdenum content - Lead molybdate weight method YS/T 555.1 YS/T 555.2 Methods for chemical analysis of molybdenum concentrates - Determination of silicon dioxide - Mo - Mo - blue spectrophotometric and gravimetric methods YS/T 555.3 Methods for chemical analysis of molybdenum concentrates - Determination of arsenic content - Atomic fluorescence spectrometry and DDTC-Ag spectrophotometric method Methods for chemical analysis of molybdenum concentrates - Determination of tin content - Atomic fluorescence spectrometric method YS/T 555.4 Methods for chemical analysis of molybdenum concentrates - Determination of phosphorus content - Phosphorolybdenum blue spectrophotometric method YS/T 555.5 YS/T 555.6 Methods for chemical analysis of molybdenum concentrates - Determination of copper, lead, bismuth and zinc - Flame atomic absorption spectrometric method YS/T 555.7 Methods for chemical analysis of molybdenum concentrates - Determination of calcium oxide - Flame atomic absorption spectrometric method YS/T 555.8 Methods for chemical analysis of molybdenum concentrates - Determination of tungsten content Thiocyanate spectrophotometric method YS/T 555.9 Methods for chemical analysis of molybdenum concentrates - Determination of potassium and sodium content - Flame atomic absorption spectrometric method YS/T 555.10 Methods for chemical analysis of molybdenum concentrates - Determination of the amount of rhenium Thiocyanate spectrophotometric method Methods for chemical analysis of molybdenum concentrates - Determination of total oil and moisture content - Gravimetric method YS/T 555.11 this section is part 4.

This part replaces YS/T 555.4-2006 "Determination of tin content of molybdenum concentrate" (formerly GB/T 15079.4-1994).

The main changes in this part compared with YS/T 555.4-2006 are as follows.

Determination of salicylfluorone - cetyltrimethylammonium bromide spectrophotometric method to atomic fluorescence spectrometry;

--- The text format has been modified to supplement the quality assurance and control provisions;

--- Increased precision terms.

This part of the National Nonferrous Metals Standardization Technical Committee proposed and centralized.

This part is responsible for drafting units. Jinduicheng Molybdenum Industry Group Co., Ltd., China Nonferrous Metals Industry Standard Measurement Quality Institute.

This part participates in the drafting unit. Jiangxi Copper Company (Dexing) Mine New Technology Development Co., Ltd., Hunan Shizhuyuan Nonferrous Metal Co., Ltd.

Any company.

1 Scope

This section specifies the determination of tin content in molybdenum concentrates.

This part is applicable to the determination of tin content in molybdenum concentrate.

Measuring range. 0.0003% ~ 0.03%.

2 Method summary

Samples were decomposed by sodium oxide, in acidic medium, tetravalent tin and potassium borohydride role in the formation of tin hydride, and from the carrier gas into the quartz Atomic atomization in the atomization, hollow cathode lamp as the light source, in the atomic fluorescence spectrometer on the determination of tin fluorescence intensity. In a certain range , The fluorescence intensity is proportional to the tin content.

3 Reagent

3.1

Sodium peroxide.

3.2

sulfuric acid (density 1.84g/mL), excellent grade pure.

3.3

Sulfuric acid (1 + 3).

3.4

hydrochloric acid (density 1.19g/mL), excellent grade pure.

3.5

potassium borohydride solution (20g/L). Weigh 4g potassium borohydride dissolved in 200mL sodium hydroxide solution (5g/L), mix. time cost Now with 3.6 tartaric acid solution (80g/L). Weigh 8g tartaric acid dissolved in 100mL water.

3.7

phenolphthalein indicator (1g/L). Weigh 0.1g phenolphthalein dissolved in 60mL ethanol, completely dissolved and diluted with water to 100mL.

3.8

tin standard storage solution. Weigh 0.1000g metal tin (99.95%) in 300mL beaker, add 20mL hydrochloric acid (3.4), to be After dissolving the tin completely, add 20 mL of hydrochloric acid (3.4). The solution was transferred to a 1000 mL volumetric flask, diluted with water to a graduated volume and mixed. This solution Liquid 1mL containing 100µg of tin.

3.9

tin standard solution. Remove 5mL tin standard storage solution (3.8) in a 500mL volumetric flask, dilute with tartaric acid solution (3.6) Degree, mix. 1 mL of this solution containing 1 g of tin.

4 Instruments

Atomic fluorescence photometer with tin hollow cathode lamp (for atomic fluorescence).

In the best working conditions of the instrument, who can meet the following indicators can be used.

- detection limit. not more than 1×10^{-9} g/mL;

Precision. 0.1 µg/mL tin standard solution measured fluorescence intensity 10 times, the standard deviation does not exceed the fluorescence intensity 0.5%;

- reference operating conditions for atomic fluorescence photometers. lamp current 80Ma; negative high pressure 260V; carrier gas flow 400mL/min; shielding Air flow rate 800mL/min.

5 Samples

Samples should be pre-off oil and moisture, the particle size is less than 0.090mm.

Specimen should be baked at 100 °C ~ 105 °C for 1h, placed in the dry Cooling to room temperature.