

ICS 77.120.99
CCS H 14;D43

YS

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

YS/T 555.3-2009

Replacing YS/T 555.3-2006

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

钼精矿化学分析方法砷量的测定原子荧光光谱法和DDTC-Ag分光光度法
(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 "Methods for chemical analysis of molybdenum concentrate" includes 11 parts.

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"The method concentrates - Determination of arsenic content" in this section instead of YS/T 555.3-2006 (formerly GB/T 15079.3-1994).

This portion of YS/T 555.3-2006 compared to the main changes are as follows.

- Determination method increases the atomic fluorescence spectrometry;
- Increasing the precision of the terms;

--- Text format has been modified, supplemented with quality assurance and control provisions.

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

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1 Method, atomic fluorescence spectrometry

1 Scope

This method specifies the method for the determination of arsenic content in Molybdenum Concentrates.

This method is applicable to the determination of arsenic content in Molybdenum Concentrates. Measurement range. 0.00003% to 0.0010%.

2 Method summary

Sample decomposition by aqua regia, in acid medium, with thiourea - ascorbic acid pentavalent arsenic reduced to trivalent, and then potassium borohydride and trivalent Arsenic hydride generation, introduced into the hydride atomizer to hollow cathode lamp as the light source, the determination of arsenic in the atomic fluorescence spectrometer Fluorescence strength. In a certain range, and the amount of the fluorescent intensity is proportional to the measured elements. Iron salt was added to eliminate interference.

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

sodium hydroxide.

3.2

hydrochloric acid ($\rho=1.19\text{g/mL}$), pure class distinctions.

3.3

aqua regia (excellent pure reagent preparation).

3.4

Sodium hydroxide solution (50g/L).

3.5

hydrochloric acid solution (1 + 1), excellent pure reagent preparation.

3.6

tartaric acid solution (80g/L).

3.7

Ferric chloride solution. Weigh 4.5g FeCl_3 dissolved in 100mL of hydrochloric acid (3.2), and then added 200mL of water and mix.

3.8

thiourea - ascorbic acid mixture. Weigh 5g 5g ascorbic acid and thiourea was dissolved in 100mL of water, and mix. The time is now equipped with.

3.9

potassium borohydride solution. Weigh 10g of potassium borohydride dissolved in 500mL previously prepared sodium hydroxide solution (5g/L), and dissolved with Cotton filter. The time is now equipped with.

3.10

arsenic standard stock solution. Weigh 0.1320g spectroscopically pure arsenic trioxide dissolved in 10mL of sodium hydroxide solution (3.4) was added 5mL hydrochloric acid (3.5) and transferred to 1000mL volumetric flask, and then hydrochloric acid (1 + 9) diluted to the mark. This solution containing 1mL 100 μg arsenic.

3.11

Arsenic standard solution. Pipette 5mL arsenic standard stock solution (3.10) in 500mL volumetric flask, dilute to the mark with hydrochloric acid (1 + 4), shake uniform. This solution 1mL containing 1 μg of arsenic.

4 Instrument

Atomic fluorescence spectrometer (arsenic hollow cathode lamp).

Under optimum working conditions for those who can reach the following indicators can be used.

--- Detection limit. not more than $1 \times 10^{-9}\text{g/mL}$;

--- Precision. The fluorescence intensity was measured with a standard solution of arsenic 0.1 $\mu\text{g/mL}$ 10 times, and the standard deviation does not exceed the fluorescence intensity 0.5%;