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YS

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

YS/T 555.7-2009

Replacing YS/T 555.7-2006

**Methods for chemical analysis of molybdenum concentrate.
Determination of calcium oxide content. Flame atomic
absorption spectrometry**

钼精矿化学分析方法氧化钙量的测定火焰原子吸收光谱法
(English Translation)

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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 calcium content" in this section instead of YS/T 555.7-2006 (formerly GB/T 15079.7-1994).

This portion of YS/T 555.7-2006 compared to the main changes are as follows.

Determination of calcium --- revision for the determination of calcium oxide content;

--- Increasing the molybdenum substrate method to eliminate interference;

--- 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 Scope

This section provides the determination of calcium oxide content of molybdenum concentrate.

This section applies to the determination of calcium oxide content of molybdenum concentrate. Measuring range. 0.08% - 4.80%.

2 Method summary

Sample prior to 500 °C muffle furnace burning to remove large amounts of sulfur, carbon, oil, and then acid decomposition. Hydrochloric acid in a suitable medium, strontium salt and lanthanum salts as release agents, atomic absorption spectrometer at a wavelength of 422.7nm, air - acetylene flame measured absorbance of calcium oxide.

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

nitrate (ρ 1.42g/mL), pure class distinctions.

3.2

hydrochloric acid (ρ 1.19g/mL), pure class distinctions.

3.3

Hydrofluoric acid (ρ 1.13g/mL).

3.4

perchloric acid ($\rho=1.68\text{g/mL}$), pure class distinctions.

3.5

HCl (1 + 1).

3.6

strontium chloride and lanthanum chloride mixed solution. Weigh 10g pure spectrum of strontium chloride ($\text{SrCl}_2 \cdot 6\text{H}_2\text{O}$) and lanthanum chloride 20g pure spectrum, placed 400mL beaker, add a small amount of water, dissolved by heating, cooling, transferred to 200mL volumetric flask, dilute with water to volume, and mix.

3.7

calcium oxide standard solution. Weigh 0.1785g advance at 105°C drying 1h and was cooled to room temperature inside the dryer calcium carbonate (base Quasi reagent), placed in 300mL beaker, covered with a watch glass, was added 10mL of hydrochloric acid (3.5) low-temperature heating to dissolve completely cooled and transferred to 1000mL Volumetric flask, dilute with water to volume, and mix. This solution 1mL containing $100\mu\text{g}$ calcium oxide. Store in plastic bottle.

3.8

molybdenum substrate solution (5mg/mL). Weigh 0.7500g of high purity molybdenum trioxide reagent in 200mL beaker, add 30mL water and 1mL ammonia ($\rho=0.90\text{g/mL}$, superior grade pure), after dissolved by heating, boiling 5min, cooled and transferred to 100mL volumetric flask, dilute to the mark with water Degree, and mix.

4 Instrument

Atomic absorption spectrometer, with a calcium hollow cathode lamp.

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

--- Precision minimum requirements. measuring the absorbance of the highest standard solution 10 times the standard deviation should not exceed the average absorbance 1.0%. Lowest measured standard solution (not a "zero" standard solution) absorbance of 10 times the standard deviation should not exceed the maximum standard 0.5% average standard solution absorbance.

--- Characteristic concentration. the test solution and measurement matrix consistent solution, characterized in calcium concentration should not exceed $0.08\mu\text{g/mL}$.

--- Linear standard curve. The standard curve is divided into five sections according to concentration, than the difference between the absorbance of the absorbance difference

between the highest and the lowest segment not less than 0.7.

5 Sample

Specimens shall be pre-stripped oil and moisture, particle size less than 0.090mm. After the sample should be 100 °C ~ 105 °C baking 1h, dry place