

ICS 77.120.99
CCS H 14

YS

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

YS/T 555.1-2009

**Methods for chemical analysis of molybdenum concentrate.
Determination of molybdenum content. Lead molybdenum
gravimetry**

钼精矿化学分析方法 钼量的测定 钼酸铅重量法

(English Translation)

Issued on: December 4, 2009

Implemented on: June 1, 2010

**Issued by: Ministry of Industry and Information Technology of the
People's Republic of China**

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Foreword

YS/T 555 "Methods for chemical analysis of molybdenum concentrate" comprises 11 parts.

YS/T 555.1, Methods for chemical analysis of molybdenum concentrate.

Determination of molybdenum content. Lead molybdenum gravimetry;

YS/T 555.2, Methods for chemical analysis of molybdenum concentrate.

Determination of silicon dioxide content. Silicon molybdenum blue spectrophotometry and gravimetry;

YS/T 555.3, Methods for chemical analysis of molybdenum concentrate.

Determination of arsenic content. Atomic fluorescence spectrometry;

YS/T 555.4, Methods for chemical analysis of molybdenum concentrate.

Determination of tin content. Atomic fluorescence spectrometry;

YS/T 555.5, Methods for chemical analysis of molybdenum concentrate.

Determination of phosphorus content. Phosphorus molybdenum blue spectrophotometry;

YS/T 555.6, Methods for chemical analysis of molybdenum concentrate.

Determination of copper, lead, bismuth and zinc content. Flame atomic

absorption spectrometry;

YS/T 555.7, Methods for chemical analysis of molybdenum concentrate.

Determination of calcium oxide content. Flame atomic absorption spectrometry;

YS/T 555.8, Methods for chemical analysis of molybdenum concentrate.

Determination of tungsten content. Thiocyanate spectrophotometry;

YS/T 555.9, Methods for chemical analysis of molybdenum concentrate.

Determination of potassium and sodium content. Flame atomic absorption spectrometry;

YS/T 555.10, Methods for chemical analysis of molybdenum concentrate.

Determination of potassium and sodium content;

YS/T 555.11, Methods for chemical analysis of molybdenum concentrate.

Determination of oil and moisture content. Gravimetry.

This is Part 1.

This Part replaces YS/T 555.1-2006 "Molybdenum concentrates. Determination of molybdenum content" (formerly GB/T 15079.1-1994).

Compared with YS/T 555.1-2006, the main changes in this Part are as follows.

- Before adding ammonia to precipitate iron and other impurities, add a small amount of filter paper pulp to the solution;
- The addition rate of lead acetate solution is specified as 1 mL/3 s;
- Precision clauses have been added;
- The text format has been modified, and quality assurance and control clauses have been added.

This Part was proposed by and shall be under the jurisdiction of National Technical Committee on Non-ferrous Metals of Standardization Administration of China.

Main drafting organizations of this Part. Jinduicheng Molybdenum Group Co., Ltd., and China Nonferrous Metals Industry Standards, Metrology and Quality Research Institute.

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Versions of standard substituted by this Part are.

- GB/T 15079.1-1994;

- YS/T 555.1-2006.

Methods for chemical analysis of molybdenum concentrate.

Determination of molybdenum content. Lead molybdenum gravimetry

1 Scope

This Part specifies the method for determining the molybdenum content in molybdenum concentrate.

This Part applies to the determination of molybdenum content in molybdenum concentrate. Determination range. $\geq 40\%$.

This Part does not apply to the determination of molybdenum content in molybdenum concentrate with a tungsten content greater than 2%.

2 Method summary

The specimen is decomposed in a saturated nitric acid-potassium chlorate solution. Impurities are precipitated with ammonia. It is then filtered. The filtrate is placed in an acetic acid-ammonium acetate buffer medium, where lead acetate precipitated the molybdate ions in the solution to form lead molybdate. The precipitate is filtered, ignited, and weighed to constant weight. Molybdenum in the residue after ammonia separation is determined and corrected using a thiocyanate spectrophotometric method.

3 Reagents

Unless otherwise specified, only reagents confirmed to be analytically pure and distilled or deionized water or water of equivalent purity shall be used in the analysis.

3.1 Mixed flux. weigh 500 g of anhydrous sodium carbonate and 250 g of zinc oxide.

Mix well and grind finely. Store in a ground glass bottle.

3.13 Acetic acid-ammonium acetate buffer solution. weigh 250 g of ammonium acetate

into a 1000 mL beaker. Dissolve in 500 mL of water, then add 150 mL of acetic acid.

Filter and dilute with water to 1000 mL. Mix well.

3.14 Ferric chloride solution (48 g/L). weigh 48 g of ferric chloride ($\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$) and

dissolve it in 50 mL of hydrochloric acid (3.3). Dilute with water to 1000 mL. Mix well.

3.15 Ammonium nitrate solution (30 g/L). weigh 30 g of ammonium nitrate and

dissolve it in 1000 mL of water. Adjust the pH to 8~9 with ammonia water (3.10).

3.16 Ammonium acetate solution. measure 25 mL of acetate-ammonium acetate buffer

solution (3.13). Dilute with water to 500 mL. Mix well.

3.17 Lead acetate solution (18 g/L). weigh 18 g of lead acetate into a 1000 mL beaker.

Add 15 mL of glacial acetic acid and 80 mL of water to dissolve. Filter and dilute with water to 1000 mL.

3.20 Sulfuric acid-copper sulfate solution. weigh 1 g of copper sulfate ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$)

into a 1000 mL beaker. Add 1000 mL of sulfuric acid (3.9) to dissolve. Mix well.