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YS

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

YS/T 227.9-2010

Replacing YS/T 227.9-1994

**Methods for chemical analysis of tellurium. Part 9:
Determination of tellurium content. Potassium
bichromate-ammonium ferrous sulfate titration**

碲化学分析方法 第9部分：碲量的测定重铬酸钾-硫酸亚铁铵容量法

(English Translation)

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Table of Contents

Foreword

1 Scope

2 Principle of the method

3 Reagents

Foreword

YS/T 227 "tellurium chemical analysis methods," a total of 12 parts.

--- Part 1. Determination of bismuth content hydride generation - atomic fluorescence spectrometry;

--- Part 2. Determination of aluminum content Chromazurol S- bromo cypyrindinium micellar solubilization spectrophotometry;

--- Part 3. Determination of lead content by flame atomic absorption spectrometry;

--- Part 4. Determination of iron content - Phenanthroline spectrophotometric method;

--- Part 5. determination of selenium content of 2,3-diaminonaphthalene spectrophotometry;

--- Part 6. Determination of copper content of solid-liquid separation - flame atomic absorption spectrometry;

--- Part 7. Determination of sulfur content by inductively coupled plasma atomic emission spectrometry;

--- Part 8. magnesium, sodium content - Flame atomic absorption spectrometry;

--- Part 9. Determination of tellurium content of potassium dichromate - ammonium ferrous sulfate volumetric method;

--- Part 10. Determination of arsenic content by hydride generation - atomic fluorescence spectrometry;

--- Part 11. Determination of silicon content of n-butanol silicon molybdenum blue spectrophotometric method;

--- Part 12. bismuth, aluminum, lead, iron, selenium, copper, magnesium, sodium, arsenic content - Inductively coupled plasma atomic emission spectrometry.

Part is divided into 9 parts.

This section drafted in accordance with GB/T 1.1-2009 given rules.

"Determination of tellurium in the tellurium content (potassium dichromate - ammonium ferrous sulfate volumetric method)" in this section instead of YS/T 227.9-1994. And YS/T 227.9-Compared to 1994, this section has the following changes.

- Measured by the 98.5% limit adjusted to 95%;
- Complements the precision, quality assurance and control provisions;
- Complements the "test report" requirement.

The non-ferrous metal part by the National Standardization Technical Committee (SAC/TC243) centralized.

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1 Scope

YS/T of the provisions of the section 227 determination of tellurium in the tellurium content.

This section applies to the determination of tellurium in the tellurium content. Measuring range. 95% to 99.5%.

2 Principle of the method

The sample is dissolved in nitric acid, sulfuric smoke, sulfuric acid, phosphoric acid, potassium dichromate oxidation telluric acid into telluric acid, for use with sodium Indicator, with an excess of ferrous ammonium sulfate standard titration solution of potassium dichromate, this determination of tellurium content.

In the measurement sample containing 0.2% respectively, silver, antimony, arsenic and 5.0% copper, iron, selenium, lead, silicon, magnesium, tin, aluminum, bismuth, sodium did not affect the Determination.

When antimony, arsenic greater than 0.2%, less than 5.0%, the bromine can be oxidized to As (V), Sb (V), to eliminate the As (III), Sb (III) interference. MnO_4^- , $\text{Cr}_2\text{O}_7^{2-}$, Br_2 other strong oxide sample decomposition caused when part of Te (IV) oxidation of Te (VI), adopt Treated with hydrochloric acid to restore it.

3 Reagents

Unless otherwise indicated, used in the analysis confirmed analytically pure reagents and distilled or deionized water or equivalent purity.

Nitrate 3.1 (rho1.42g/mL).

3.2

hydrochloride (rho1.19g/mL).

3.3

phosphoric acid (rho1.70g/mL).

3.4

sulfate (rho1.84g/mL).

3.5

bromine.

3.6

sulfate (11).

3.7

ferrous ammonium sulfate standard solution (approximately 0.1mol/L). Weigh 39.2g ferrous ammonium sulfate and dissolved in sulfuric acid (0.5mol/L), and moved to 1000mL brown volumetric flask, dilute to the mark with sulfuric acid (0.5mol/L), and shake. In the shade, after standing 24h use.

3.8

standard potassium dichromate solution [$c(1/6K_2Cr_2O_7) = 0.2000mol/L$].

3.8.1

preparation. Weigh 9.8060g baseline potassium dichromate (previously at 120 °C drying to constant weight), dissolved in a little water and transferred to 1000mL Volumetric flask, dilute to the mark, shake.

3.8.2

The ratio of potassium dichromate standard solution (3.8) and ferrous ammonium sulfate standard solution (3.7) (K) of the assay. Pipette 10.00mL dichromate Potassium standard solution (3.8), placed in a triangular 500mL beaker, add 200mL of water, 10 mL of hydrochloric acid (3.2), 20mL sulfuric acid (3.6), 5mL phosphate (3.3), 8 drops of sodium diphenyl ammonia solution (3.9), the standard ferrous ammonium sulfate solution (3.7) Analysis by titration step. ratio (K) is measured along with the sample simultaneously.