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

YS/T 349.1-2009

Replacing YS/T 349-1994

Methods for chemical analysis of cobalt sulfide concentrate. Part 1: Determination of cobalt content. Potentiometric titration method

硫化钴精矿化学分析方法 第1部分：钴量的测定 电位滴定法

(English Translation)

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Foreword

YS/T 349 "cobalt sulfide concentrates - the method" is divided into four parts.

--- Part 1. Determination of cobalt content potentiometric titration;

--- Part 2. Determination of copper content - Flame atomic absorption spectrometry;

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

--- Part 4. Determination of the amount of silica potassium fluosilicate volumetric method.

This section YS/T Part 1 349.

The partial replacement of YS/T 349-1994 Determination of cobalt content portion "matte cobalt concentrate chemical analysis methods", and YS/T 349-1994 phase Ratio, this section there are major changes as follows.

--- Measurement range is defined as. 4% to 25%;

--- Analysis of the nitroso R salt spectrophotometry to potentiometric titration;

--- Supplementary terms of quality assurance and control, increasing the precision of the terms.

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

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Participated in the drafting of this section. Ningbo Yanmen Chemical Co., Ltd., Ganzhou cobalt tungsten limited liability company.

1 Scope

This section YS/T 349 specifies the method for the determination of cobalt content of cobalt sulfide concentrate.

This section applies to the determination of cobalt sulfide concentrate cobalt content.

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Measurement range. 4% to 25%.

2 Method summary

Samples with hydrochloric acid, nitric acid, perchloric acid decomposition in the presence of a salt of citric acid solution of ammonia, potassium ferricyanide solution of cobalt (II) oxide cobalt (III), an excess of potassium ferricyanide by potentiometric titration method back titration with cobalt standard titration solution. In a sample of manganese (II) coexisting, also iron Potassium cyanide solution quantitative oxidation of manganese (III), the measured results for cobalt and manganese combined amount of manganese correction after subtracting the amount of cobalt, is the amount of cobalt. test when samples of manganese content is less than 0.05%, the impact is negligible amount of manganese.

3 Reagents

Unless otherwise specified, the reagents were analytical reagent, which is a distilled water or equivalent purity water.

3.1
ammonium hydrogen fluoride.

3.2
ammonium chloride.

3.3
hydrochloride (rho1.19g/mL).

Nitrate 3.4 (rho1.42g/mL).

3.5
perchloric acid (rho1.67g/mL).

3.6
Hydrofluoric acid (rho1.15g/mL).

3.7
ammonium citrate - ammonia mixed solution. Weigh 50g ammonium citrate dissolved in 500mL water, add ammonia to 1000mL, and mix.

3.8
cobalt standard titration solution. Accurately weigh 1.0000g metal cobalt (>=99.95%) was added 20mL of nitric acid (1 + 1), low dissolved, Washing with water dish and cup wall, moved into 1000mL volumetric flask, constant volume of water. 1mL solution containing 1mg cobalt.

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3.9

ferricyanide standard solution (rho [K3Fe (CN) 6] = 11.2g/L).

3.9.1

preparation. Weigh 11.2g of potassium ferricyanide, adding about 250mL dissolved in water, filtered and diluted with water to 1000mL, shake, stored in a Brown bottle and set aside.

3.9.2

Calibration. Pipette 10.00mL Cobalt Standard Solution (3.8) in the 150mL beaker, 5g of ammonium chloride (3.2), 50mL Ammonium citrate - ammonia mixed solution (3.7), was added 10.00mL ferricyanide accurate standard solution (3.9.1), the automatic potentiometric titrator (4.1), insert the electrode (4.2), stirring, by the end of the potential of the instrument to set the end point of the titration recognition program or set, cobalt standard titration solution Solution (3.8) titration.

According to equation (1) calculate the standard solution of potassium ferricyanide titration cobalt standard solution titration factor.

K = Vp Vp 1 Vp 2 0+

Where.

K --- titration factor ferricyanide standard solution volume consumed per unit volume of the number of standard titration solution of cobalt;

V0 --- cobalt Pipette a few ml of the standard solution, in milliliters (mL of);

Vp 1 --- retitrate cobalt standard solution milliliters consumed in milliliters (mL);

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