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

YS/T 349.4-2010

Replacing YS/T 349-1994

**Methods for chemical analysis of cobalt sulfide concentrate.
Part 4: Determination of silicon dioxide. Potassium
silicofluoride capacity method**

硫化钴精矿化学分析方法 第4部分：二氧化硅量的测定氟硅酸钾容量法
(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 is Part 4.

The partial replacement of YS/T 349-1994 Determination of the amount of the portion of the silicon "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. 1% to 25%;
- 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.

This section is responsible for drafting Jinchuan Group Limited.

This in part by the Beijing General Research Institute of Mining and Metallurgy, Beijing Nonferrous Metal Research Institute participated in the drafting.

1 Scope

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

This section applies to the determination of silicon dioxide content of cobalt sulfide concentrate. Measurement range. 1% to 25%.

2 Method summary

Sample by alkali fusion, hot water taken after acidification, in strongly acidic solution was added potassium chloride and potassium fluoride and silicate ions formed potassium fluosilicate precipitation. Fluorine potassium silicate material amount of hydrolysis, precipitation of hydrofluoric acid in hot water with phenolphthalein as indicator, titrated with standard sodium hydroxide solution Titration.

3 Reagents

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

3.1

potassium hydroxide.

3.2

potassium chloride.

Nitrate 3.3 ($\rho=1.42\text{g/mL}$).

3.4

KCl wash (50g/L).

3.5

potassium fluoride solution (300g/L).

3.6

phenolphthalein indicator (10g/L).

3.7

Potassium chloride - ethanol solution. Weigh 5g of potassium chloride dissolved in 50mL water, and 50mL ethanol mix.

3.8

standard titration solution of sodium hydroxide (0.1mol/L). Weigh 4g of sodium hydroxide dissolved in pre-boiled cold water until completely dissolved Diluted to 1L.

Calibration. Weigh three 0.600g (accurate to 0.0001g) in advance at 100 °C ~ 105 °C drying 2h potassium hydrogen phthalate (base Quasi reagent), placed in 500mL conical flask, 200mL of carbon dioxide-free water (boiled) was dissolved, was added 5 drops of phenolphthalein indicator (3.6), standard titration with sodium hydroxide solution (3.8) titrate to a reddish color as the end point.

Along with the calibration blank test.

According to equation (1) calculate the standard volumetric sodium hydroxide solution of silica Titration factor.

$$m1 \times 60.08$$

$$(V1-V0) \times 204.2$$

Where.

FS --- titration factor, and 1.00mL sodium hydroxide standard titration solution rather silica mass in grams per milliliter (G/mL);

Mass m1 --- potassium hydrogen phthalate, in grams (g);

V1 --- the calibration, titration of potassium hydrogen phthalate solution of sodium hydroxide standard titration solution volume of consumption in milliliters (ML of);