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

YS/T 667.3-2009

**The testing methods for chemical alumina. Part 3: Determining
concentration of cadmium, chromium and vanadium in 4A
zeolite by ICP-AES**

化学品氧化铝化学分析方法 第3部分：4A沸石中镉、铬、钒含量的测定电感耦合
等离子体发射光谱法

(English Translation)

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Table of Contents

Foreword
1 Scope
2 Principle of the method
3 Reagent
4 Instruments
5 Samples
6 Analysis steps
6.1 Samples

Foreword

YS/T 667 "Chemical Alumina Chemical Analysis Method" is divided into four parts.

- Part 1 Determination of cadmium, chromium and vanadium content in aluminum hydroxide and pseudo-boehmite for filler - Inductively coupled plasma emission Spectral method -
Part 2 Determination of arsenic, mercury and lead in aluminum hydroxide and pseudo-boehmite for filler - Hydride generation - Inductively coupled Ion emission spectroscopy;

- Part 3. Determination of cadmium, chromium and vanadium in zeolite - Inductively coupled plasma - atomic emission spectrometry;

Determination of arsenic and mercury in zeolites - Hydride generation - Inductively coupled plasma - atomic emission spectrometry.

This section is part 3.

Appendix A to this section is an informative appendix.

This part of the National Nonferrous Metals Standardization Technical Committee proposed and centralized.

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Chemical analysis methods for chemical alumina Part 3 of the 4A zeolite Determination of cadmium, chromium and vanadium content Inductively Coupled Plasma Atomic Emission

Spectrometry

1 Scope

This part of YS/T 667 specifies the determination of cadmium, chromium and vanadium in 4A zeolite.

This part is applicable to the determination of cadmium, chromium and vanadium in 4A zeolite. Determination of the range. cadmium $1 \times 10^{-4}\%$ ~ $5 \times 10^{-3}\%$; chromium $5 \times 10^{-4}\%$ ~ $5 \times 10^{-3}\%$; vanadium $5 \times 10^{-4}\%$ ~ $5 \times 10^{-3}\%$.

2 Principle of the method

The sample was dissolved in hydrochloric acid. In dilute hydrochloric acid medium, the argon plasma source was directly introduced into the medium, and the spectrum was measured.

The effect of positive matrix on the determination.

3 Reagent

Unless otherwise stated, only deionized water or comparable purity of water is used in the analysis.

3.1

hydrochloric acid 1 + 1 (excellent grade by sub-boiling secondary distillation).

3.2

Cadmium standard solution. This standard stock solution (1mg/mL) by the National Institute of Standards and Materials provided.

3.3

Chrome Standard Solution. This standard stock solution (1mg/mL) is provided by the National Center for Standard Material Research.

3.4

Vanadium standard solution. This standard stock solution (1mg/mL) provided by the National Center for Standard Material Research.

3.5

mixed standard solution. respectively, accurate removal of 1.00mL cadmium standard solution (3.2), 1.00mL chromium standard solution (3.3), 1.00mL Vanadium standard solution (3.4) in a 100 mL volumetric flask, add 20 mL of hydrochloric acid (3.1), and then dilute to the mark with secondary deionized water and mix.

The concentration of cadmium, chromium and vanadium in this mixed standard solution was 10µg/mL.

3.6

aluminum matrix solution. Weigh 13.2350g pure aluminum (> 99.999%) in a beaker, add 250mL hydrochloric acid (3.1), low temperature heated to Dissolve completely. Into the 500mL volumetric flask, cooled to room temperature, diluted with secondary deionized water to the mark, mix. This solution 1L oxygen Aluminum 50g.

3.7

sodium matrix solution. Weigh 5.08g spectrum of pure sodium chloride (pre-500 °C muffle furnace burning 1h, cooled to room temperature) in the beaker, Add 30mL deionized water cover on the table, placed on the hot plate until the sample completely dissolved, into the 100mL volumetric flask, cooled to room temperature, Diluted with secondary deionized water to the scale, this solution 1L sodium 20g.

3.8

High purity argon (> 99.999%).

4 Instruments

Full - spectrum direct - reading plasma emission spectrometer.

5 Samples

The samples were baked in an oven at 105 ° C $\pm$ 5 ° C for 1 h. Placed in a desiccator, cooled to room temperature and immediately weighed.

6.1 Samples

Weigh 0.25g sample (5), accurate to 0.0001g.