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YS

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

YS/T 534.4-2007

Replacing YS/T 534.4-2006

**Chemical analysis methods of aluminium hydroxide. Part 4:
Determination of iron oxide content. Orthophenanthroline
photometric method**

氢氧化铝化学分析方法 第4部分：三氧化二铁含量的测定邻二氮杂菲光度法
(English Translation)

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Foreword

YS/T 534-2007 "chemical analysis of aluminum hydroxide" is YS/T 534-2006 (formerly GB/T 6610-2003) amendments it is divided into five parts.

--- Part 1. Determination of moisture content - Gravimetric method

--- Part 2. loss on ignition - Gravimetric method

--- Part 3. Determination of silica content molybdenum blue photometric

--- Part 4. Determination of iron oxide content phenanthroline spectrophotometry
Determination of sodium oxide content. Part 5 ---this is Part 4.

The partial replacement of YS/T 534.4-2006 (formerly GB/T 6610.4-2003).

This part is YS/T 534.4-2006 "Chemical analysis methods of aluminum hydroxide - Part 4.
iron oxide content - o -Phenanthroline photometric "editorial finishing.

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

This part of the Aluminum Corporation of China Zhengzhou Research Institute is responsible for drafting.

This section drafted by the Aluminum Corporation of China Guizhou Branch.

1 Scope

This section provides the determination of aluminum hydroxide iron oxide content.

This section applies to the determination of aluminum hydroxide, iron oxide content.
Measurement range. 0.003% to 0.065%.

2 Principle of the method

With hydroxylamine hydrochloride ferric reduced to ferrous iron in acetic acid - sodium acetate buffer solution, and phenanthroline form complexes in spectrophotometric Meter measuring the absorbance at a wavelength of 510nm.

3 Reagents

3.1

boric acid. pure class distinctions.

3.2

anhydrous sodium carbonate. pure class distinctions.

3.3

nitric acid (3.00mol/L).

3.4

HCl (1 + 1).

3.5

hydroxylamine hydrochloride solution (10g/L).

3.6

phenanthroline solution (1g/L). Weigh 1g phenanthroline dissolved in 1.5mL ~ 2.5mL glacial acetic acid ($\rho = 1.05\text{g/mL}$), Moved into 1000mL volumetric flask, dilute with water to volume, and mix.

3.7

buffer solution (pH4.9). Weigh 272g of sodium acetate ($\text{CH}_3\text{COONa} \cdot 3\text{H}_2\text{O}$) were dissolved in 500mL of water, 240mL of ice was added Acetic acid ($\rho = 1.05\text{g/mL}$), diluted with water to 1000mL, and mix.

3.8

ferric oxide standard stock solution. Weigh 0.5000g when ferric oxide [$(\text{Fe}_2\text{O}_3) \geq 99.99\%$, previously at 600°C burning Burning 2h, and (4.4) to cool to room temperature in a desiccator] 150mL beaker is placed along the vessel wall was added 40mL of hydrochloric acid (3.4), cover sheet pan, So that all micro heat to dissolve, cooled to room temperature, the solution is transferred 1000mL volumetric flask, beaker with water wash, lotion incorporated into the flask with water Dilute to volume, and mix. 1mL 0.5mg solution containing ferric oxide.

Ferric oxide 3.9 Standard Solution. Pipette 25.00mL iron sesquioxide standard stock solution (3.8) in 500mL volumetric flask.

30.0mL nitric acid (3.3), dilute to the mark and mix. This solution 1mL containing 0.025mg ferric oxide, formulated with time.

4 Instrument

4.1

platinum crucible. 30mL, with cover.

4.2

Spectrophotometer.

4.3

Electric board. The regulator can control the heating temperature no higher than 250 °C.

4.4

dryer. with a new activated alumina desiccant.

5 Sample

The sample was ground with a mortar through 150μm sieve drying 2h at 110 °C ± 5 °C, placed in a desiccator, cool reserve.