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**YS**

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

**YS/T 575.1-2007**

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**Methods for chemical analysis of bauxite - Part 1:  
Determination of aluminium oxide content - EDTA titrimetric  
method**

**(English Translation)**

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### Foreword

YS/T 575-2007 "Methods for chemical analysis of bauxite" is a modification to YS/T 575-2006 (formerly GB/T 3257-1999). It has 24 parts in total.

- Part 1.Determination of aluminum oxide content - EDTA titrimetric method;
- Part 2.Determination of silicon dioxide content - Gravimetric-molybdenum blue photometric method;
- Part 3.Determination of silicon dioxide content - Molybdenum blue photometric method;
- Part 4.Determination of iron oxide content - Potassium titrimetric method;
- Part 5.Determination of iron oxide content - Orthophenanthroline photometric method;
- Part 6.Determination of titanium dioxide content - Diantipyrylmethane photometric method;
- Part 7.Determination of calcium oxide content - Flame atomic absorption spectrophotometric method;
- Part 8.Determination of magnesium oxide content - Flame atomic absorption spectrophotometric method;

- Part 9.Determination of potassium oxide, sodium oxide content - Flame atomic absorption spectrophotometric method;
- Part 10.Determination of manganese oxide content - Flame atomic absorption spectrophotometric method;
- Part 11.Determination of chromium oxide content - Flame atomic absorption spectrophotometric method;
- Part 12.Determination of vanadium pentoxide content - N-benzoyl-N-phenylhydroxylamine photometric method;
- Part 13.Determination of zinc content - Flame atomic absorption spectrophotometric method;
- Part 14.Determination the total content of rare earth oxide Tribromo-arsenazo photometric method;
- Part 15.Determination of gallium oxide content - Rhodamine B-extraction photometric method;
- Part 16.Determination of phosphorus pentoxide content - Molybdenum blue spectrophotometric method;
- Part 17.Determination of sulfur content - Direct combustion-iodometric method;
- Part 18.Determination of total carbon content - Non-aqueous titrimetric method after combustion;
- Part 19.Determination of the loss on ignition - Gravimetric method;
- Part 20.Preparation of pre-dried sample;
- Part 21.Determination of organic carbon content titrimetric method;
- Part 22.Determination of hygroscopic moisture in analytical samples - Gravimetric method;
- Part 23.Determination of element contents X-ray fluorescence spectrometric method;
- Part 24.Determination of carbon content and sulfur content - Infrared

absorption method.

This Part is Part 1.

This Part replaces YS/T 575.1-2006 (formerly GB/T 3257.1-1999).

This Part is a modification to YS/T 575.1-2006. Compared with YS/T 575.1-2006, the main changes in this Part are as follows.

- modified lead acetate standard solution in YS/T 575.1-2006 to zinc standard solution, potassium fluoride solution to sodium fluoride;
- deleted the definition of "titer";
- unified the drying temperature of the specimen as  $110^{\circ}\text{C}\pm 5^{\circ}\text{C}$ ;
- added precision.

This Part was proposed by and shall be under the jurisdiction of National Technical Committee on Non-ferrous Metals of Standardization Administration of China.

Main drafting organization of this Part. China Aluminum Corporation Zhengzhou Research Institute.

The drafting organization of this Part. China Aluminum Corporation Shanxi Branch.

Main drafters of this Part. Huang Anping, Yuan Xiaoke, He Xiaodong, He Ruihong.

This Part shall be interpreted by National Technical Committee on Non-ferrous Metals of Standardization Administration of China.

Version of standard substituted by this Part is.

- YS/T 575.1-2006 (formerly GB/T 3257.1-1999).

Methods for chemical analysis of bauxite - Part 1.

Determination of aluminium oxide content - EDTA

titrimetric method

## 1 Scope

This Part specifies the determination method of aluminium oxide content in bauxite.

This Part is applicable to the determination of aluminium oxide content in bauxite. The determination range is 40%~80%.

## 2 Method summary

The specimen is melted and decomposed by sodium carbonate-boric acid or sodium hydroxide, is extracted by hot water and is acidized by hydrochloric acid. Use lactic acid masked titanium or in the presence of EDTA, use sodium hydroxide to separate and remove impurity elements such as iron and titanium. Then in the weakly acidic solution, make aluminum complex with excessive EDTA.

**3.18.1 Place metal aluminum shavings (99.99%) in a 100mL beaker. Add 25mL** of water and 25mL of hydrochloric acid (3.6). Heat to boil 5min~10min. Then remove. After pouring the solution, use water to completely clean. Then use absolute ethanol to wash 3 times. Place on a watch glass that is padded with filter paper. Put into a  $110^{\circ}\text{C}\pm 5^{\circ}\text{C}$  drying oven to dry 5min. Take it out and place in a dryer to cool.

### 3.19 Zinc standard solution (0.0200mol/L)

Weigh 1.3076g of high-purity zinc in a 300mL beaker. Add 50mL of water. Cover the watch glass. Along with the beaker wall, add 15mL of nitric acid (1+1). Slightly heat till it is completely dissolved and evaporated to 10mL~15mL. Cool to room temperature. Use water to wash the watch glass and beaker wall. Move into a 1000mL volumetric flask. Dilute to the scale and shake well.

## 4 Specimen

Use a mortar to grind the specimen. Through a  $74\mu\text{m}$  sieve, place the well-