

ICS 71.100.10
CCS H 30

YS

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

YS/T 575.21-2020

**Methods for chemical analysis of bauxite - Part 21:
Determination of organic carbon content**

铝土矿石化学分析方法 第21部分：有机碳含量的测定

(English Translation)

Issued on: December 9, 2020

Implemented on: April 1, 2021

Issued by: Ministry of Industry and Information Technology of PRC

Table of Contents

Foreword...	3
1 Scope...	6
2 Titration...	6
3 Infrared absorption method...	11
4 Test report...	14

Foreword

YS/T 575 Methods for chemical analysis of bauxite is divided into 29 parts.

- Part 1.Determination of aluminium 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 - Dichromate 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 and 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.Methods for chemical analysis of bauxite - Part 12.Determination of vanadium pentoxide content - N-benzoy-N-phenythyroxy lamine photometric method;

-- Part 13.Determination of zinc content - Flame atomic absorption spectrophotometric method;

-- Part 14.Determination of rare earth oxide content;

-- 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 loss on ignition - Gravimetric method;

-- Part 20.Preparation of pre-dried sample;

-- Part 21.Determination of organic carbon content;

-- Part 22.Determination of hygroscopic moisture - Gravimetric method;

-- Part 23.Determination of element contents - X-ray fluorescence spectrometry method;

-- Part 24.Determination of carbon content and sulfur content - Infrared absorption method;

-- Part 25.Determination of sulfur content - Coulometric titration method;

-- Part 26.Determination of sulphate content - Barium sulphate gravimetric method;

-- Part 27.Determination of element contents - Inductively coupled plasma atomic emission spectrometric method;

-- Part 28.Determination of lithium oxide content - Flame atomic absorption spectrophotometric method;

-- Part 29.Determination of available alumina and reactive silica.

This part is Part 21 of YS/T 575.

This part was drafted according to the rules given in GB/T 1.1-2009.

This part replaces YS/T 575.21-2007 Methods for chemical analysis of bauxite - Part

21 Determination of organic carbon content - Titrimetric method. Compared with

YS/T 575.21-2007, in addition to editorial modifications, the main technical changes of this part are as follows.

- The requirements for reagent purity and test water are added (see 2.2);
- The description of the preparation of sodium oxalate standard solution is modified (see 2.2.4; see 3.4 of the 2007 edition);
- The test steps are modified (see 2.5; see Chapter 6 of the 2007 edition);
- The calculation formula is modified (see 2.6; see Chapter 7 of the 2007 edition);
- The repeatability limit is modified (see 2.7.1; see 8.1 of the 2007 edition);
- The infrared absorption method is added (see Chapter 3).

This part was proposed by and is under the jurisdiction of the National Technical Committee on Nonferrous Metals of Standardization Administration of China (SAC/TC 243).

Drafting organizations of this part. CHALCO Shandong Co., Ltd., CHINALCO Zhengzhou Nonferrous Metals Research Institute Co., Ltd., and China Aluminum Mining Co., Ltd.

Main drafters of this part. Tian Rui, Cao Jianjun, Shao Jing, Zhou Bo, Shi Lei, Xue Ning, Ai Zhen, Nian Lina, Wang Xiaoyan and Liu Wei.

The previous versions of the standards replaced by this part are as follows.

- GB/T 3257.23-1999, YS/T 575.21-2006, YS/T 575.21-2007.

Methods for chemical analysis of bauxite - Part 21.

Determination of organic carbon content

1 Scope

This part specifies the method for determining the organic carbon content in bauxite by titration and infrared absorption.

This part is applicable to the determination of organic carbon content in bauxite.

Determination range. 0.010%~1.00%.

The infrared absorption method is used as the arbitration test method.

2.1 Method summary

The sample is boiled with phosphoric acid to decompose carbonate, and organic carbon is oxidized to carbon dioxide with potassium persulfate by using silver sulfate as a catalyst; thymolphthalein is used as an indicator, and ethanol-ethanolamine-potassium hydroxide standard titration solution is used for titration to calculate the mass fraction of organic carbon.

2.2 Reagents

Unless otherwise stated, only reagents confirmed to be of analytical grade and laboratory grade II water are used in the analyses.

2.3 Measurement device

The schematic diagram of the measurement device is shown in Figure 1.

2.5.1 Test portion

Weigh the specimen according to Table 1, accurate to 0.0001 g.

2.5.2 Parallel experiments

Perform two experiments in parallel and take the average value.

2.5.3 Blank test

Carry out a blank test along with the specimen test.

2.5.4.4 Transfer 20 mL of saturated potassium persulfate solution (2.2.3) to the separatory funnel, heat the three-necked flask until the solution boils for 20 minutes, and add all of the saturated potassium persulfate solution (2.2.3) to the three-necked