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YS/T 575.17-2007

Replacing YS/T 575.17-2006

Methods for chemical analysis of bauxite - Part 17: Determination of sulfur content - Direct combustion - iodometric method

铝土矿石化学分析方法

第 17 部分：硫含量的测定

燃烧-碘量法

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Foreword

YS/T 575-2007 "Methods for chemical analysis of bauxite", the revision to YS/T 575-2006 (formerly GB/T 3257-1999), is divided into 24 parts:

-- Part 1: Determination of aluminum oxide content - EDTA titration method

-- Part 2: Determination of silica dioxide content - Gravimetric-molybdenum blue photometric method

-- Part 3: Determination of silica dioxide content - Molybdenum blue photometric method

-- Part 4: Iron oxide content - Potassium dichromate titration method

-- Part 5: Determination of iron trioxide content - Orthopenanthroline photometric method

-- Part 6: Determination of titanium dioxide content - Diantipyryl methane 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 content of potassium oxide and sodium oxide - 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 - benzoyl phenyl hydroxylamine photometric method

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

-- Part 14: Determination of total rare earth oxide content - Tribromoarsenazo photometric method

-- Part 15: Determination of gallium oxide content - Rhodamine B-extraction photometric method

Methods for chemical analysis of bauxite - Part 17: Determination of sulfur content - Direct combustion - iodometric method

1 Scope

This Part specifies the determination method of sulfur content in bauxite.

This Part applies to the determination of sulfur content in bauxite. The determination range: ≤3.00%.

2 Method Summary

In the presence of a flux, the sample is heated for decomposition in an oxygen stream at 1300°C±20°C; the sulfur dioxide generated is absorbed by water to form sulfurous acid; use starch as the indicator; use iodine standard titration solution for titration, so as to determine the sulfur content; the combined water in the sample influences the precision; use rining method to eliminate.

3 Reagents

3.1 Lead sulfate: reference reagent.

3.2 Tin sheet (99.9%).

3.3 Sulfuric acid (ρ 1.84 g/mL).

3.4 Mixed flux: mix vanadium pentoxide and boron oxide of equal-mas; grind it finely; then dry it under 105°C~110°C before use.

3.5 Potassium hydroxide (400 g/L).

3.6 Solution of potassium permanganate (50 g/L): dissolve 10g of potassium permanganate in 200 mL of potassium hydroxide (3.5).

3.7 Absorption solution: use a little water to mix 0.5g of soluble starch; stir it into a paste; add 100 mL of boiling water; stir and heat it to dissolve until transparent; use water to dilute to 1L; drop-add iodine standard titration solution (3.8) until sky blue; transfer it to a volumetric flask or under jar (3 in Figure 1); use water to dilute to 1 L; shake up; store it in an amber bottle; use it after storage overnight.

3.8 Titration solution

Table 1

Mass fraction of sulfur content / %	Allowable difference /%
≤0.050	0.01
>0.050 ~ 0.100	0.02
>0.10 ~ 0.50	0.04
>0.50 ~ 1.00	0.08
>1.00 ~ 3.00	0.15

9 Quality assurance and control

Use standard samples or control samples for verification during the analysis, or use standard samples or control samples for verification at least once a year. When the process is out of control, the causes shall be identified. And the verification shall be carried out once again after the mistakes are corrected.

_____ END _____

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