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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 6730.16-2016

Replacing GB/T 6730.16-1986

**Iron ores - Determination of sulfur content - Barium sulfate
gravimetric method**

铁矿石 硫含量的测定 硫酸钡重量法

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Quarantine;
Standardization Administration of the PRC**

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Foreword

GB/T 6730 "iron ore" is divided into dozens of parts. This part is part 16 of GB/T 6730. This part is drafted in accordance with the rules given in GB/T 1.1-2009. This part of the GB/T 6730.16-1986 "iron ore chemical analysis method barium sulfate gravimetric determination of sulfur". This part with GB/T 6730.16-1986 compared to the editorial changes, the main technical changes are as follows:

--- the name changed to "iron ore sulfur content determination barium sulfate weight method"; - Added "warning" "normative reference document" "instrument" "test report" "Appendix B" "Appendix C" and so on;

--- The range of measurement is changed from "0.300% ~ 5.00%" to "0.030% ~ 5.00%";

--- sample decomposition method by sodium peroxide - sodium carbonate melt decomposition modified to sodium carbonate - zinc oxide semi - melt decomposition; - leaching method by boiling leaching modified to electromagnetic stirring leaching; The inter-laboratory precision tests were carried out, and the "allowable difference" was replaced by the statistical repeatability r and the reproducibility limit R . This part is made by China Iron and Steel Industry Association. This section is headed by the National Commission on Standardization of Iron Ore and Direct Reductive Iron (SAC/TC317). This part of the main drafting unit. Changsha Mining and Metallurgy Research Institute limited liability company, Metallurgical Industry Information Standards Institute, Beilun immigration inspection Quarantine Bureau, Anshan Iron and Steel Group Mining Company. This part of the main drafters. Zhang Zhiyong, Li Zishang, statements, Chen Zibin, Lu Chunsheng, Zhou Haibo, Yang Lin, Chen Hehai, Chen Zhihua. This part of the previous version of the standard to replace the release of the situation.

--- GB/T 6730.16-1986. Iron ore - Determination of sulfur content - Barium sulfate gravimetric method WARNING - Personnel using this section should have practical experience in formal laboratory work. This section does not indicate all possible security questions question. It is the responsibility of the user to take appropriate safety and health measures and to ensure compliance with the conditions set forth in the relevant national

regulations.

1 Scope

Part 16 of China's long series of chemical analysis methods for iron ores, covering the determination of sulfur by the barium sulfate gravimetric method - the referee method, the one a buyer and a seller fall back on when an instrumental result on a cargo is disputed, because a weighed precipitate can be re-weighed and does not depend on a calibration that has drifted. This part specifies the determination of sulfur content by the barium sulfate gravimetric method, and it applies to iron ores, iron ore concentrates, sinter and pellets, over a determination range of 0.030 % to 5.00 % by mass fraction. The sample is decomposed so that all forms of sulfur present, sulfide and sulfate alike, are brought into solution as sulfate; the interfering elements, above all the iron itself, are separated or masked; the sulfate is then precipitated as barium sulfate from hot acid solution under the conditions that give a filterable precipitate rather than a colloid; and the precipitate is filtered, washed free of the salts that would otherwise be weighed with it, ignited to constant mass and weighed, the sulfur being calculated from its mass. Nearly all of the method is about the conditions that keep the barium sulfate quantitative and free of co-precipitated iron and alkali - the acidity, the temperature, the rate of addition, the digestion time and the washing - which is where a gravimetric determination is won or lost. Issued on 13 October 2016 and in force since 1 September 2017, it replaces GB/T 6730.16-1986.

This part of GB/T 6730 specifies the determination of sulfur content by barium sulfate gravimetric method. This part is applicable to the determination of sulfur content in iron ore, iron concentrate, sinter and pellet. The determination range (mass fraction). 0.030% ~ 5.00%.

2 Normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article. For undated references, the latest edition (including all modifications) applies to this document.

GB/T 6379.1 Accuracy of measurement methods and results (accuracy and precision) - Part 1. General and definitions

GB/T 6379.2 Accuracy of measurement methods and results (accuracy and precision) - Part 2. Determination of standard measurement methods The basic method of sex and reproducibility

GB/T 6682 Analytical laboratory water specifications and test methods Preparation of pre-dried samples for analysis of iron ore GB/T 6730.1

GB/T 6730.3 Methods for chemical analysis of iron ores - The gravimetric method for the determination of moisture content in samples Representation and Judgment of Numerical

Correction Rule and Limit Value of GB/T 8170

GB/T 10322.1 Iron Ore Sampling and Sample Preparation

3 Principle

The sample was decomposed with a mixed solvent of sodium carbonate-zinc oxide, the sulfate ion was leached with water under electromagnetic stirring, and the hydroxide was removed by filtration, Carbonates and other precipitation. The filtrate in the dilute hydrochloric acid solution, adding barium chloride, so that the formation of sulfate sulfate barium sulfate precipitation. Burning, weighing, according to sulfur The quality of barium is calculated by the sulfur content.

4 Reagents and Materials

Unless otherwise stated, only the reagents identified as analytical reagents and those of Class 3 and Grade 3 in accordance with GB/T 6682 are used in the analysis. Water or deionized water or water equivalent to its purity.

4.1 Calcium carbonate.

4.2 sodium carbonate - zinc oxide mixed flux, sodium carbonate (grinding to the particle size of less than 125 μ m) and zinc oxide by mass ratio of 3. 2 mix.

4.3 hydrofluoric acid, $\rho =$

4.4 Hydrochloric acid, 1 1.

4.5 Sulfuric acid, 1 1.

4.6 Hydrogen peroxide, 30% (mass fraction).

4.7 anhydrous ethanol.