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

**GB/T 6730.7-2016**

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**Iron ores - Determination of metallic iron content -  
Sulfosalicylic acid spectrophotometric method**

铁矿石 金属铁含量的测定 磺基水杨酸分光光度法

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### Foreword

GB/T 6730 "iron ore" is divided into dozens of parts. This part is part 7 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 6730.7-1986 "iron ore chemical analysis method sulfosalicylic acid photometric determination of iron content." versus GB/T 6730.7-1986 compared to the editorial changes, the main technical changes are as follows:

- the name changed to "iron ore iron content determination of sulfosalicylic acid spectrophotometric method";
- Added "warning" "normative reference document" "instrument" "test report" "Appendix B" and so on;
- modified the separation of non-magnetic material handling operations, from the external magnetic election to the magnetic separation;
- modified the measurement operation, remove the volume from 20.00mL to 10.00mL, constant volume from 100mL to 50mL, while Adjust the reagent dosage accordingly. 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. The main drafters of this part. Fu Rao, Fu Zhao Di, Yu Xing, Yang Binghong, Zhang Yanli, Liu Zhida, Zeng Hao, Yang Lin, statements. This part of the previous version of the standard to replace the release of the situation.
- GB/T 6730.7-1986. Determination of iron content of iron ore Sulfosalicylic acid spectrophotometric 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 7 of China's national series on the analysis of iron ores, determining metallic iron by sulfosalicylic acid spectrophotometry. Metallic iron means iron present as the element rather than as an oxide, and the distinction is the whole point of direct reduced iron: a DRI pellet is judged by its degree of metallisation, the fraction of its iron that has actually been reduced to metal, because that is what the steelmaker is buying and what he does not have to reduce himself. The determination is therefore separate in kind from total iron - it must dissolve and measure only the metallic fraction while leaving the oxides untouched, which is what makes the chemistry delicate. Sulfosalicylic acid forms a coloured complex with iron whose colour depends on pH, allowing the measurement to be made under controlled conditions. This part applies to the determination of metallic iron in iron ore, iron concentrate, sinter and pellets over a mass fraction range of 0.020 to 0.300 per cent.

This part of GB/T 6730 specifies the determination of metallic iron content by sulfosalicylic acid spectrophotometry. This part is applicable to the determination of iron content in iron ore, iron concentrate, sinter and pellets. Measuring range (mass fraction). 0.020% to 0.300%.

## 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 6682 Analytical laboratory water specifications and test methods Preparation of pre-drying 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 Metallurgical products - Chemical analysis - Spectrophotometric methods Representation and Judgment of Numerical Correction Rule and Limit Value of GB/T 8170

GB/T 10322.1 Iron Ore Sampling and Sample Preparation

GB/T 12806 laboratory glass instrument single standard line capacity bottle

GB/T 12807 Laboratory glass instruments - Index pipettes

GB/T 12808 Laboratory glass instruments Single line suction pipette

## 3 Principle

After the sample is magnetized, it is stirred and leached with a high mercury-sodium salicylate ethanol solution to make the iron and other iron compounds. And then the iron content was measured at a wavelength of 460 nm by sulfosalicylic acid photometry.

## 4 Reagent

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 Hydrochloric acid, 2 1.

4.2 Hydrogen peroxide, 1 9.

4.3 anhydrous ethanol.

4.4 high chloride - sodium salicylate mixed solution, weighing 2.5g of high chloride and 3g sodium salicylate dissolved in 100mL 95% ethanol.

4.5 sulfosalicylic acid solution, 100 g/L.