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

GB/T 6730.19-2016

**Iron ores - Determination of phosphorus content - Bismuth
phosphomolybdate blue spectrophotometric method**

铁矿石 磷含量的测定 铋磷钼蓝分光光度法

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Foreword

GB/T 6730 "iron ore" is divided into dozens of parts. This part is part 19 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 6730.19-1986 "iron ore chemical analysis method bismuth phosphorus molybdenum blue photometric determination of phosphorus". This part with GB/T 6730.19-1986 compared to the editorial changes, the main technical changes are as follows:

- the standard name to "iron ore phosphorus content determination bismuth phosphorus molybdenum blue spectrophotometric method";
- Added "warning" "normative reference document" "test report" and so on;
- the measurement range from 0.010% ~ 0.50% to 0.010% to 1.00%; - increased the operation of sodium thiosulfate - sodium sulfite masking arsenic; 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 drafting unit. Wuhan Iron and Steel (Group) Company, Metallurgical Industry Information Standards Institute. The main drafters of this part. Shen Ke, Lu Qi, Guo Fang, Li Xiaojie, Cui Jun, Luo Hongbin, Chen Xiaohong, Chen Zhibin. This part of the previous version of the standard to replace the release of the situation.
- GB/T 6730.19-1986. Determination of phosphorus content in iron ore Bismuth - phosphorus - molybdenum blue spectrophotometric method WARNING - Personnel using this section should have formal laboratory experience. This section does not indicate all possible security issues with the user Have the responsibility to take appropriate safety and health measures and to ensure compliance with the conditions set forth in the relevant national regulations.

1 Scope

Part 19 of China's national series on the analysis of iron ores, determining phosphorus by

bismuth phosphomolybdate blue spectrophotometry. Phosphorus is the impurity that has shaped the history of steelmaking. It passes almost entirely from the ore into the hot metal, and in steel it dissolves in the ferrite and embrittles it at low temperature - the phenomenon known as cold shortness, which was why phosphoric ores were useless until the basic converter lining was invented. It is still removed in the steel plant at real cost, by slag chemistry that has to be managed deliberately, and there is a limit to how far it can be taken. So an ore's phosphorus content is a specification with money attached to it, and it is measured at the mine, at the port and at the furnace. The phosphomolybdenum blue reaction is the classical route, with bismuth improving the sensitivity and stability of the colour. This part applies to iron ore, concentrate, sinter and pellets over 0.010 to 1.00 per cent.

This part of GB/T 6730 specifies the determination of phosphorus content by bismuth-phosphorus molybdenum blue spectrophotometry. This part is applicable to the determination of phosphorus content in iron ore, iron concentrate, sinter and pellet, and the determination range. (mass fraction) 0.010% ~ 1.00%.

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 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

Samples with hydrochloric acid, nitric acid, hydrofluoric acid decomposition, perchloric acid

smoke to catch fluoride, insoluble residue filter, ashing, burning, with sodium carbonate melting, hydrochloric acid Dissolved, the residue treatment solution and the main liquid merger. In the sulfuric acid medium phosphorus and bismuth and ammonium molybdate to form complexes, followed by ascorbic acid to molybdenum blue. The absorbance was measured at a wavelength of 720 nm. 20 mg of titanium dioxide, 10 mg of manganese, 2 mg of copper, 10 mg of copper,

0.5 mg of tetravalent vanadium, 3 mg of nickel, 6 mg of hexavalent chromium, Cerium 10mg, iron 50mg and zirconium 5mg below the determination of no effect, niobium pentoxide content of 0.3% or less without interference. Arsenic in the treatment test Such as hydrogen bromide can be used to eliminate, or arsenic 0.3mg or less in the color with sodium thiosulfate to reduce the arsenic to the elimination of interference.

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 water equivalent to its purity.