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

GB/T 6730.47-2017

**Iron ores - Determination of niobium content -
Sulfochlorophenol S spectrophotometric method**

铁矿石 铌含量的测定 氯代磺酚S分光光度法

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Foreword

GB/T 6730 "iron ore" is divided into dozens of sections. This section GB/T 6730 Part 47. This section drafted in accordance with GB/T 1.1-2009 given rules. This section instead of GB/T 6730.47-1986 "chemical analysis of iron ores chlorosulfonols S luminosity Determination of niobium," This section and GB/T 6730.47-1986 compared to, in addition to editorial changes, the main technical changes are as follows:

- The standard name was changed to "determination of niobium content of iron ore chlorosulfonol S spectrophotometry";
- Added "warning" "normative references" "instrument" and "test report" chapter and content, the original chapter number has been adjusted accordingly;
- Clear and standardized sample and sample preparation of the specific requirements;
- The "sample size" to "sample size", and clear the weighing accuracy;
- Removed the coefficient (1) of the coefficient "K" and "K" of the statement;
- Added "to determine the results of the analysis." This part is proposed by China Iron and Steel Association. This part of the National Iron Ore and Direct Reduced Iron Standardization Technical Committee (SAC/TC317) centralized. This part of the drafting unit. Ningbo Inspection and Quarantine Science and Technology Research Institute, Shanghai Entry-Exit Inspection and Quarantine, Metallurgical Industry Information Standards Research Institute. The main drafters of this section. Chen Hehai, Zhu Zhixiu, Tang Yun, Li Yulu, Chen Zi Bin, Ying Haisong, Liao Haiping, Zhang Aizhen. This part of the standard replaces the previous version of the release.
- GB/T 6730.47-1986. Iron ores - Determination of niobium content Chlorosulphonol S

spectrophotometry Warning

--- personnel using this section should have formal laboratory work experience. This section does not indicate all possible safety issues question. It is the user's responsibility to take appropriate safety and health measures and to ensure compliance with the requirements of the relevant state laws and regulations.

1 Scope

Part 47 of China's national series on the analysis of iron ores, determining niobium by sulfochlorophenol S spectrophotometry. Niobium in iron ore is not an impurity to be watched but a resource to be recovered, and in China that is a specific and important case: the Bayan Obo deposit in Inner Mongolia is mined for iron and carries niobium and rare earths with it, making it one of the world's significant niobium resources. Niobium is what makes modern high strength low alloy steel possible - a few hundredths of a per cent forms fine carbonitrides that pin the grain boundaries during rolling, giving a fine-grained steel that is stronger and tougher at once, which is the basis of pipeline and structural steel. Sulfochlorophenol S is one of the few reagents giving a sensitive colour reaction with niobium, which is otherwise analytically awkward because it hydrolyses readily. This part applies to iron ore, concentrate, sinter and pellets over 0.007 to 0.350 per cent.

GB/T 6730 provisions of this part of the chlorosulfonate S spectrophotometric determination of niobium content. This section applies to the determination of iron ore, iron ore, sinter and pellet niobium content. Determination of the range (mass fraction) .0.007% ~ 0.350%.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the latest edition (including all amendments) applies to this document.

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

GB/T 8170 rounded repair rules and limit values of the representation and judgment

GB/T 10322.1 Iron ore sampling and sample preparation methods

GB/T 12806 laboratory glassware single standard line capacity bottle

GB/T 12807 Laboratory glassware graduated pipette

GB/T 12808 laboratory glassware single standard pipette

3 Principle

The sample was decomposed by hydrofluoric acid, the insoluble residue was dissolved with

potassium pyrosulfate and leached with tartaric acid. In 0.5mol/L ~ 2mol/L hydrochloric acid medium, Niobium and chlorosulfonated S form a stable 1:1 blue-green complex. The absorbance is measured at a wavelength of 650 nm, whereby the amount of niobium is measured. Hydrofluoric acid destruction of niobium - chlorosulfonates S complex test solution as a reference, to increase the allowable amount of coexisting elements.

4 Reagents and materials

Unless otherwise indicated in the analysis, the use of only approved analytical reagent and in line with GB/T 6682 more than three distilled water or its The purity of water.

4.1 potassium pyrosulfate.

4.2 Ammonium chloride.

4.6 Ammonium hydroxide, ρ about

0.90 g/mL.