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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 6730.45-2025

Replacing GB/T 6730.45-2006

Iron ores - Determination of arsenic content - Arseno-molybdenum blue spectrophotometric method after hydrogen arsenide separation

铁矿石 砷含量的测定 砷化氢分离—砷钼蓝分光光度法

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is Part 45 of GB/T 6730 "Iron Ore". The published parts of GB/T 6730 are shown in Appendix A.

This document replaces GB/T 6730.45-2006 "Determination of arsenic content in iron ore-Arsenic hydrogen separation-Arsenic molybdenum blue spectrophotometric method".

Compared with GB/T 6730.45-2006, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

a) The determination range of arsenic content has been changed (see Chapter 1, Chapter 1 of the 2006 edition);

b) The wording of "Principle" has been changed and the principle of acid decomposition method has been added (see Chapter 4, Chapter 3 of the 2006 edition);

c) Added sulfuric acid, nitric acid and hydrofluoric acid in "Reagents and Materials" (see 5.5, 5.6 and 5.7);

d) Added polytetrafluoroethylene beaker, high temperature furnace, spectrophotometer and analytical balance to "Instruments and equipment", and added arsine gas Requirements for drying gas ducts of generation and absorption devices (see 6.2, 6.4, 6.5, 6.6 and 6.7);

e) Added the hydrochloric acid-nitric acid-hydrofluoric acid-sulfuric acid decomposition method in "Decomposition of sample" (see 8.4.1.1);

f) The table of aliquot test solution has been changed (see 8.4.2, 7.4.2 of the 2006 edition);

g) Added the requirements for the gas conduit insertion depth to the liquid level (see

8.4.3.2);

h) The precision regression equation has been changed (see 9.2.1, 8.2.1 of the 2006 edition);

i) The expression of the calculation of the final result has been changed (see 9.2.5, 8.2.5 of the 2006 edition);

j) The acceptance procedure for sample analysis results has been changed (see Appendix B, Appendix A of the 2006 edition).

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document was proposed by the China Iron and Steel Association.

This document is under the jurisdiction of the National Technical Committee on Iron Ore and Direct Reduced Iron (SAC/TC317).

This document was drafted by: Hunan Valin Xiangtan Iron and Steel Co., Ltd., China Certification and Inspection Group Hebei Co., Ltd., and Sinosteel Ma'anshan General Research Institute of Mining Co., Ltd., Metallurgical Industry Information Standards Research Institute.

The main drafters of this document are: Li Liuying, Du Dengfu, Shen Zhen, Wu Zhifeng, Xu Xiuping, Chen Zeren, Hua Shaoguang, Guo Dengyuan, Wang Yang, Li Xiaojun, Li Bo, Xing Wu, Chen Zibin, and Zhang Chen.

This document was first issued in 1986, revised for the first time in 2006, and this is the second revision.

Introduction

Iron ore is the main raw material of the steel industry. In the standard system of the steel industry, the standard system of the determination method of the chemical composition of iron ore is one of the most important standards.

It is a very important part of the production process and plays an important role in ensuring the quality of iron ore products. This series of method standards serves the production of iron ore.

production, trade and application, providing technical support for the high-quality development of China's steel industry.

GB/T 6730 includes a series of standards for the determination of chemical composition of iron ore, which respectively stipulates the water content, total iron content, metal content and so on in iron ore products.

Iron, ferrous iron, silicon, aluminum, calcium, magnesium, sulfur, phosphorus, manganese,

titanium, total rare earth, barium, chromium, vanadium, tin, copper, cobalt, nickel, zinc, niobium, bismuth, potassium, sodium, carbon, lead, arsenic, Determination of chemical composition such as cadmium, mercury, fluorine, chlorine, loss on ignition and combined water.

In 1986, GB/T 6730 first issued 51 national standards for the determination of chemical composition of iron ore.

The development of technology and actual production needs have led to the formation of a relatively complete standard system after years of continuous formulation and revision.

The parts of GB/T 6730 to be published are shown in Appendix A.

Determination of arsenic content in iron ore Arsine Separation-Arsenomolybdenum Blue Spectrophotometry Warning. People who use this document should have experience in regular laboratory work. This document does not address all possible safety issues.

The user is responsible for taking appropriate safety and health measures and ensuring that the conditions stipulated by relevant national laws and regulations are met.

1 Scope

This document describes the determination of arsenic content by arsine separation-arsenomolybdenum blue spectrophotometry.

This document is applicable to the determination of arsenic content in iron ore, iron concentrate, sintered ore and pelletized ore. Determination range (mass fraction). 0.001%~ 0.50%.

2 Normative references

GB/T 6379.1

GB/T 6379.2

GB/T 6682

GB/T 6730.1

GB/T 6730.3

GB/T 7729

GB/T 8170

GB/T 10322.1

GB/T 12806

GB/T 12807

3 Terms and Definitions

There are no terms or definitions that require definition in this document.

4 Principles

According to the properties of the sample and the content of coexisting elements, the following methods are selected to decompose the sample.

a) Acid decomposition method. The sample is heated and decomposed with hydrochloric acid, nitric acid, hydrofluoric acid, and sulfuric acid in sequence;

b) Sodium peroxide melting method. The sample is melted with sodium peroxide and then leached and dissolved with water and sulfuric acid.

After the sample is decomposed, arsenic acid is reduced to arsenite with stannous chloride and potassium iodide in a sulfuric acid medium, and metallic zinc reduces arsenite to arsenic oxide.