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

GB/T 6730.24-2025

Replacing GB/T 6730.24-2006

**Iron ores - Determination of total rare earth contents - Arsenazo
III spectrophotometric method**

铁矿石 稀土总量的测定 偶氮胂III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 24 of GB/T 6730 "Iron Ore". The published parts of GB/T 6730 are shown in Appendix A.

This document replaces GB/T 6730.24-2006 "Determination of the total amount of rare earth in iron ore - Extraction separation - Chlorophosphonazo mA spectrophotometry Compared with GB/T 6730.24-2006, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) Change the measurement range to "0.010%~1.10%" (see Chapter 1, Chapter 1 of the 2006 edition);
- b) The color developer has been changed from chlorophosphonazo mA to arsenazo III (see 5.23, 4.14 of the 2006 edition);
- c) The determination principle of the method has been changed (see Chapter 4, Chapter 3 of the 2006 edition);
- d) Added a chapter on "Instruments and Equipment" (see Chapter 6);
- e) Added "General treatment of analysis results" (see 9.2).

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 Iron Ore and Direct Reduced Iron Standardization Technical Committee (SAC/TC317).

This document was drafted by: Baotou Rare Earth Research Institute, China Steel Group Ma'anshan Mining Research Institute Co., Ltd., China Certification and Inspection Group Hebei Group Co., Ltd., Baotou Steel Group Mining Research Institute (Limited Liability Company), Baotou Steel Surveying and Mapping Research Institute, Nuclear Industry 203 Research Institute, Inner Mongolia Baotou Steel Union Co., Ltd., Changsha Institute of Mining and Metallurgy Testing Technology Co., Ltd., and Metallurgical Industry Information Standards Research Institute.

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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 for the steel industry. In the standard system of the steel industry, the standard system for determination of 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 methods and standards serve 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 content of moisture, total iron, metal 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 methods for chemical components 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.

In line with the development of technology and actual production needs, after years of continuous formulation and revision, a relatively complete standard system has been formed.

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

Determination of total rare earth content in iron ore Arsenazo III spectrophotometry
Warning---People who use this document should have practical experience in formal laboratory work. This document does not address all possible safety issues.

The user is responsible for taking appropriate safety and health measures and ensuring compliance with the conditions stipulated in relevant national laws and regulations.

1 Scope

This document specifies the arsenazo III spectrophotometric method for the determination of the total amount of rare earth elements in iron ore.

This document is applicable to the determination of the total amount of rare earth in iron ore, iron concentrate, lump ore, sintered ore and pelletized ore. Determination range (mass fraction). 0.010%~1.10%.

2 Normative references

GB/T 6379.1

GB/T 6379.2

GB/T 6682

GB/T 6730.1

GB/T 7729

GB/T 8170

GB/T 10322.1

GB/T 12806

GB/T 12807

GB/T 12808

3 Terms and definitions

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

4 Principle

The sample was melted with sodium hydroxide and sodium peroxide, leached with triethanolamine, and chelated with disodium ethylenediaminetetraacetic acid (EDTA) to eliminate lead, Interfering elements such as calcium, strontium, barium, aluminum and iron are precipitated and filtered, acidified with hydrochloric acid, and then separated with hydrofluoric acid from titanium, iron, zirconium, niobium, tantalum, nickel, copper, etc.

At pH 2.8, arsenazo III and rare earth generate colored complexes, and their absorbance is measured at a wavelength of 654 nm to determine the total amount of rare earth.

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