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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 5059.11-2025

Ferromolybdenum - Determination of molybdenum, silicon, copper and iron contents - Wavelength dispersive X-ray fluorescence spectrometry (fused cast bead method)

钼铁 钼、硅、铜和铁含量的测定 波长色散X-射线荧光光谱法（熔铸玻璃片法）

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. This document is Part 11 of GB/T 5059.GB/T 5059 has already published the following parts.

---Determination of molybdenum content in ferromolybdenum using lead molybdate gravimetric method, ammonium metavanadate titration method, and 8-hydroxyquinoline gravimetric method (GB/T 5059.1);

---Determination of Molybdenum-Iron-Antimony Content. Malachite Green Spectrophotometry (GB/T 5059.2);

---Determination of Molybdenum-Iron-Copper Content by Flame Atomic Absorption Spectrometry (GB/T 5059.3);

---Determination of molybdenum-iron-silicon content by sulfuric acid dehydration gravimetric method and silicomolybdenum blue spectrophotometric method (GB/T 5059.5);

---Determination of molybdenum iron phosphorus content using bismuth phosphorus molybdenum blue spectrophotometry and molybdenum blue spectrophotometry (GB/T 5059.6);

---Determination of carbon content in ferromolybdenum using infrared absorption method (GB/T 5059.7);

---Determination of iron-sulfur content in molybdenum by infrared absorption method and combustion iodometric method (GB/T 5059.9);

---Determination of molybdenum, silicon, copper and iron content by wavelength dispersive X-ray fluorescence spectrometry (fused glass slide method) (GB/T 5059.11). Please note that some content in this document may involve patents. The issuing organization of this document assumes no 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 Standardization of Pig Iron and Ferroalloys (SAC/TC318).

This document was drafted by: Fujian Sansteel Minguang Co., Ltd., Hebei Iron & Steel Co., Ltd. Tangshan Branch, and Guangxi Liuzhou Iron & Steel Group. Limited Liability Company, Liaoning Chuangshi Molybdenum (Group) Co., Ltd., Luoyang Luanchuan Molybdenum Group Co., Ltd., CITIC (Liaoning) New Materials Technology Co., Ltd. Jilin Iron & Steel Technology Co., Ltd., Jilin Iron & Steel Ferroalloy Co., Ltd., and Metallurgical Industry Information and Standardization Research Institute. The main drafters of this document are. Huang Yunhua, Ye Aili, Zeng Yuyuan, Ji Rongyu, Liao Hongmei, Su Zhengfei, Che Wenfang, Lin Junwen, and Li Yuelin. Li Xia, Zheng Jinhong, Liu Yan, Wu Lei, Fu Xiaoshan, Guo Hongtao, Ou Jun, Li Qijun, Chen Yuanhong, Yan Zhichao, Wu Yugen, Zhang Li, Zhang Qingdong, Liu Sujuan Sun Xiaofei, Zhang Shuyang, Zheng Haidong, Lin Xiuyu, Su Bin, Lin Jieling, Lu Chunsheng, Cheng Zhaoyang.

Because the detection of ferromolybdenum involves many elements, and the applicable scope and methods for each element differ, it is crucial to ensure the accuracy of molybdenum testing. The convenience and accuracy of iron testing standards, along with analytical methods for different elements in ferromolybdenum, have led to the establishment of a national standard system supporting ferromolybdenum testing. GB/T 5059, the analytical methods for ferromolybdenum series, is the basic standard for the detection of ferromolybdenum in my country and is proposed to consist of the following eight parts.

1.Determination of Molybdenum Content (Iron Molybdenum), Lead Molybdate Gravimetric Method, Ammonium Metavanadate Titration Method, and 8-Hydroxyquinoline Gravimetric Method. Objective The method for measuring the molybdenum content in ferromolybdenum employs the lead molybdate gravimetric method, ammonium metavanadate titration method, and 8-hydroxyquinoline gravimetric method.

2.Determination of Antimony Content in Ferromolybdenum using Malachite Green Spectrophotometry. The purpose is to determine the antimony content in ferromolybdenum using malachite green spectrophotometry. Peacock green spectrophotometry.

3.Determination of Copper Content in Ferromolybdenum by Flame Atomic Absorption Spectrometry. The purpose is to determine the copper content in ferromolybdenum using flame atomic absorption spectrometry. Flame atomic absorption spectrometry.

1 Scope

GB/T 5059.11-2025 is the Chinese national standard covering four elements in ferromolybdenum from one fused bead - the fusion that removes the particle size and mineralogy effects, the calibration against certified materials, the interelement corrections, and the precision achieved. Part 11 of the ferromolybdenum analysis series, first edition. In force from 1 May 2026. Issued on 31 October 2025, it has been in force since 1 May 2026.

2.Determining the repeatability of standard measurement methods Basic methods of sex and representation

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 4010 Sample collection and preparation for chemical analysis of ferroalloys

GB/T 6379.1 Accuracy (Correctness and Precision) of Measurement Methods and Results - Part

GB/T 6379.2 Accuracy (correctness and precision) of measurement methods and results - Part

GB/T 6682 Specifications and test methods for water used in analytical laboratories

GB/T 8170 Rules for rounding off numerical values and the representation and determination of limiting values

GB/T 16597 General Rules for X-ray Fluorescence Spectrometry in Metallurgical Products

GB/T 24484 Methods for collecting and preparing ferromolybdenum samples JJG810 Wavelength Dispersive X-ray Fluorescence Spectrometer

3 Terms and Definitions

This document does not contain any terms or definitions that need to be defined.