

ICS 77.100
CCS H 11



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

GB/T 46323-2025

**Ferroaluminium, ferromanganese-aluminium and
ferromanganese-aluminium-silicon - Determination of calcium and
magnesium contents - Flame atomic absorption spectrometric method**

铝铁、铝锰铁及硅铝锰铁 钙和镁含量的测定 火焰原子吸收光谱法

Issued on: October 5, 2025

Implemented on: May 1, 2026

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

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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. 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: Ansteel Corporation Limited, Wuxi Ximai Testing Technology Co., Ltd., and Ansteel Industrial Group Co., Ltd. (Metallurgical Resources) Source Recycling Branch, Ordos Xijin Mining and Metallurgy Co., Ltd., Inner Mongolia Xintaiyuan New Materials Co., Ltd., China Certification & Inspection Group Hebei Co., Ltd., CITIC (Liaoning) New Materials Technology Co., Ltd., Jilin Iron & Steel Ferroalloy Co., Ltd., Metallurgical Industry Information Standard Quasi-research institute. The main drafters of this document are: Zhang Jie, Tian Xiumei, Deng Junhua, Kang Dehua, Tang Yanxiu, Li Xuehui, Xu Wengao, Zhou Ruidong, Wu Lei, and Wang Dongming. Ma Ning, Wu Zhifeng, Liu Fei, Zhang Li, Xu Zhibin, Miao Guangyu, Liu Mengye, Wang Hao, Sun Xiaofei, Sun Guihua, Zheng Haidong, Zheng Hongning, Lu Chunsheng Cheng Zhaoyang. Ferroaluminum, Ferroaluminum-manganese and Ferrosilicon-aluminum-manganese Determination of calcium and magnesium content by flame atomic absorption spectrometry Warning

---Personnel using this document should have formal laboratory work experience. This document does not address all possible safety issues. Users are responsible for taking appropriate safety and health measures and ensuring compliance with relevant national regulations.

1 Scope

GB/T 46323-2025 is the Chinese national standard covering calcium and magnesium in aluminium-bearing ferroalloys by flame AAS - the dissolution of a matrix that resists acid, the releasing agent that stops aluminium suppressing the signal, the calibration and the

interferences. First edition, under the China Iron and Steel Association. In force from 1 May 2026. Issued on 5 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

3 Terms and Definitions

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

4.Principles After the sample is decomposed with a suitable mixed acid, it is evaporated until perchloric acid fumes are emitted. The solution is sprayed into an air-acetylene flame, and then subjected to calcium and magnesium hollow flames respectively. Using a cathode lamp as the light source, absorbance was measured at characteristic wavelengths of 422.7 nm and 285.2 nm using a flame atomic absorption spectrometer to calculate calcium and magnesium content. content.

5.Reagents Unless otherwise specified, only approved analytical grade reagents and distilled water of grade II or higher conforming to GB/T 6682 shall be used in the analysis. It is water of comparable purity.

5.1 Hydrochloric acid, $\rho \sim 1.19 \text{ g/mL}$.

5.2 Nitric acid, $\rho \sim 1.42 \text{ g/mL}$.