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

GB/T 46378-2025

Spherical alumina powder for integrated circuit packaging

集成电路封装用球形氧化铝微粉

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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 and is under the jurisdiction of the National Technical Committee on Standardization of Semiconductor Equipment and Materials (SAC/TC203). This document was drafted by: Jiangsu Lianrui New Materials Co., Ltd., Lianrui New Materials (Lianyungang) Co., Ltd., and Guangdong Jingge New Materials Co., Ltd. Co., Ltd., China Electronics Technology Standardization Institute, Zhongchumei New Materials Co., Ltd., Henan Tianma New Materials Co., Ltd. Anhui Yishitong Materials Technology Co., Ltd., Suzhou Jinyi New Materials Technology Co., Ltd., and the National Silicon Materials Deep Processing Product Quality Supervision Bureau Supervision and Inspection Center Donghai Research Institute, Suzhou Sanrui Baide New Materials Co., Ltd., Ya'an Baitu High-tech Materials Co., Ltd., Tianjin Zexi New Materials Materials Co., Ltd., and Chalco Shandong New Materials Co., Ltd. The main drafters of this document are: Cao Jiakai, Ruan Jianjun, Liu Zhen, Hu Shicheng, Cao Kewei, Zhang Baoshuai, Pan Yue, Ma Shuyun, Wu Yiran, and Li Jin. Zhao Junsha, Zhang Yan, Yin Yafeng, Hu Linzheng, Song Houwei, Chen Jiawen, Shi Zeyuan, Jiang Xuexin, Hong Tao, Guo Min, Guo Hong, Xu Yanyan, Gao Wei, Chen Changhao.

Spherical alumina micro powder for integrated circuit packaging

1 Scope

GB/T 46378-2025 is the Chinese national standard covering the filler that makes an epoxy moulding compound conduct heat - the sphericity and the particle size distribution that decide how much can be packed in before the resin stops flowing, the purity, and the radioactive uranium and thorium that cause soft errors in memory. First edition, in force from 1 February 2026. Issued on 31 October 2025, it has been in force since 1 February 2026.

This document specifies the classification and marking, requirements, inspection rules, and

labeling, packaging, and transportation of spherical alumina micropowder for integrated circuit packaging. The corresponding experimental methods are described for storage and handling. This document applies to the preparation of aggregates using flame melting, high-temperature melt spraying, high-temperature oxidation, plasma methods, or liquid-phase synthesis. Spherical alumina micro powder for circuit packaging.

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 191 Packaging and Storage Graphic Symbols

GB/T 6284 General Method for Determination of Moisture in Chemical Products - Loss on Drying Method

GB/T 6609.4 Chemical Analysis Methods and Physical Property Determination Methods for Alumina - Determination of Ferric Oxide by o-phenanthroline Spectrophotometric Method

GB/T 6609.5 Chemical Analysis Methods and Physical Property Determination Methods for Alumina - Determination of Sodium Oxide Content GB/T 6609.32 Chemical analysis methods and physical property determination methods for alumina - Part

32.Determination of alpha-alumina content X-ray diffraction GB/T 6609.34 Chemical analysis methods and physical property determination methods for alumina - Part

34.Calculation of aluminum oxide content method GB/T 6609.35 Chemical analysis methods and physical property determination methods for alumina-Part

35.Determination of specific surface area and nitrogen adsorption Supplementary Law GB/T 6678 General Rules for Sampling of Chemical Products GB/T 6682 Specifications and test methods for water used in analytical laboratories GB/T 6908 Analytical Methods for Boiler Water and Cooling Water - Determination of Conductivity GB/T 9724 General Rules for the Determination of pH Value of Chemical Reagents GB/T 11446.7 Ion Chromatographic Determination of Trace Anions in Electronic Grade Water GB/T 14640 Determination of potassium and sodium content in industrial circulating cooling water and boiler water GB/T 19077 Particle size analysis by laser diffraction GB/T 29313 Test methods for thermal conductivity of electrical insulating materials GB/T 32661 Spherical Silica Micropowder GB/T 37406 Method for Determining the Sphericity of Spherical Silica Micropowder for Electronic Packaging - Dynamic Photoelectric Projection Method for Particles GB/T 39486 General Rules for Inductively Coupled Plasma Mass Spectrometry Analysis of Chemical Reagents GB/T 40401 Measurement of skeleton density by gas

volume displacement method

3 Terms and Definitions

The following terms and definitions apply to this document.

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