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

GB/T 46381-2025

**Low radioactive spherical silica powder for integrated circuit
packaging**

集成电路封装用低放射性球形氧化硅微粉

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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 Jiangsu Zhongke Kehua New Materials Co., Ltd. Materials Co., Ltd., China Electronics Technology Standardization Institute, Henan Tianma New Materials Co., Ltd., and Zhongchumei New Materials Co., Ltd. The company, Xi'an Geely Electronic New Materials Co., Ltd., Anhui Yishitong Materials Technology Co., Ltd., and Suzhou Jinyi New Materials Technology Co., Ltd. Co., Ltd., Donghai Research Institute of National Silicon Material Deep Processing Product Quality Supervision and Inspection Center, Zhengzhou Shenglete Hollow Microsphere New Material Co., Ltd. Company, Jiangsu Zhongteng Quartz Materials Technology Co., Ltd., Henan University, Suzhou Sanrui Baide New Materials Co., Ltd., Zhejiang Sanshiji New Materials Technology Co., Ltd. Technology Co., Ltd. The main drafters of this document are. Ruan Jianjun, Cao Jiakai, Li Gang, Pan Yue, Cao Kewei, Shi Zeyuan, Ma Shuyun, Zhang Yan, Zhao Junsha, and Wu Yiran. Yin Yafeng, Li Jin, Zhang Yanyan, Zhang Baoshuai, Gao Lirong, Nie Xinyu, Jiang Xuexin, Hu Linzheng, Cai Yaowu, Niu Liyong, Hong Tao, Li Wen, Guo Min He Xianglei and Zhao Xiuxiu. Low-radioactivity spherical silica micropowder for integrated circuit packaging

1 Scope

GB/T 46381-2025 is the Chinese national standard covering the silica filler with the uranium and thorium taken out - the alpha particle emission rate measured directly, the sphericity and particle size distribution, and the purity, because a single alpha particle can flip a

memory cell. First edition, with the alumina filler standard GB/T 46378-2025. 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, marking, requirements, inspection rules, and labeling of low-radioactivity spherical silica micropowder for integrated circuit packaging. Packaging, transportation, and storage are described, along with the corresponding testing methods. This document applies to the preparation of aggregates using flame melting, high-temperature melt spraying, high-temperature oxidation, plasma methods, or liquid-phase synthesis. Low-radioactivity spherical silica micropowder 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 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 13390 Determination of specific surface area of metal powders by nitrogen adsorption method

GB/T 14506.30 Chemical Analysis Methods for Silicate Rocks - Part

30.Determination of

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 32661 Spherical Silica Micropowder

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 sphericity The degree to which a single particle's planar projection image approximates a standard circle. [Source: GB/T 37406-2019, 3.1]

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