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

GB/T 47010-2026

**Cerium doped gadolinium gallium aluminium garnet
polycrystalline scintillator arrays**

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Foreword

This document is in accordance with GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting is scheduled. 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 Rare Earth Standardization Technical Committee (SAC/TC229). This document was drafted by: Qiandong Rare Earth Group Co., Ltd., Ningbo Qiandong Kehao Optoelectronic Technology Co., Ltd., and Tongfang Weishi Technology Co., Ltd. Limited Liability Company, Yangzhou Baishuo Crystal Technology Co., Ltd., GRINM Rare Earth High-Tech Co., Ltd., Tianjin Baogang Rare Earth Research Institute Co., Ltd. The company, Jiangxi University of Science and Technology, and Inner Mongolia Northern Rare Earth New Materials Technology Innovation Co., Ltd. The main drafters of this document are: Gong Bin, Qin Haiming, Yao Nanhong, Wang Xinjia, Li Yuanjing, Xu Wusheng, Zeng Yubin, Yu Jinqiu, and Shao Jiashao. Zhang Ruisen, Jiang Zhouqing, Sun Yijian, Hu Ting, Zhang Wenjian, Zhang Guangrui, Chen Junfeng, Gao Lele. Cerium-doped gadolinium gallium aluminum garnet polycrystalline scintillator array

1 Scope

GB/T 47010-2026 is the Chinese national standard covering the GAGG scintillator array - the ceramic that turns X-rays into light in a CT detector, with its light yield and decay time, its energy resolution, the afterglow that would smear an image, and the uniformity across an array of thousands of elements. First edition. It was issued on 28 January 2026 and has been in force since 1 August 2026, as a first edition. The document is under the responsibility of the Standardization Administration of China. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document specifies the product marking, technical requirements, inspection rules, labeling, and packaging for cerium-doped gadolinium gallium aluminum garnet

polycrystalline scintillator arrays. The transportation, storage, and accompanying documentation describe the test methods. This document applies to cerium doping used in high-energy physics experiments, nuclear medicine imaging, security inspection, nuclear radiation detection, and industrial non-destructive testing. Production and inspection of gadolinium gallium aluminum garnet polycrystalline scintillator arrays.

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 1031 Product Geometric Specification (GPS) - Surface Roughness Parameters and Their Values Using the Surface Structure Profile Method

GB/T 1958 Product Geometric Specification (GPS) - Geometric Tolerance Inspection and Verification

GB/T 4960.6-2008 Nuclear Science and Technology Terminology - Nuclear Instruments

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

GB/T 11337 Flatness Error Detection

GB/T 13181-2024 Measurement Methods for the Performance of Solid-State Scintillators

JC/T.2018-2010 Thallium-doped Cesium Iodide Crystals for High-Energy Particle Detection

XB/T 520-2021 Cerium-doped gadolinium gallium aluminum garnet polycrystalline scintillator

3 Terms and Definitions

The definitions in GB/T 4960.6-2008, GB/T 13181-2024, JC/T.2018-2010 and XB/T 520-2021, and the following Terms and definitions apply to this document.

3.1 Pixel The smallest scintillator unit that makes up a scintillator array.

3.2 scintillation array Multiple scintillator units with highly reflective surfaces are arranged according to a predetermined design and connected by optical adhesive, mechanical clamps, or other means. The combination formed.

3.3 Inclusion The solid or gaseous material inside a scintillator that is different from the matrix. [Source: JC/T.2018-2010, 3.5, modified]

3.4 In a scintillator array, the ratio of the number of arrays containing broken pixels to the

total number of arrays.

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