

ICS 77.120.99

CCS H 65



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

GB/T 30076-2026

Replacing GB/T 30076-2013

Rare earth activated silicate phosphors for LEDs

LED用稀土硅酸盐荧光粉

Issued on: May 25, 2026

Implemented on: December 1, 2026

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

Table of Contents

- 4 Product classification and brand designation methods
- 5 Technical Requirements
- 6 Test Methods
 - 6.1 Product performance testing
- 7 Inspection Rules
 - 7.1 Inspection and Acceptance
 - 7.4 Sampling
 - 7.5 Judgment of Test Results
- 8 Packaging, marking, transport, storage and accompanying documents

Foreword

This document conforms to GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting is scheduled. This document replaces GB/T 30076-2013 "Rare Earth Silicate Phosphors for LEDs". Compared with GB/T 30076-2013, it has the following differences. Aside from structural adjustments and editorial changes, the main technical changes are as follows:

- a) The original trademark numbers have been deleted (see Table 1 in the 2013 edition).
- b) Product categories have been changed (see 4.1, 2013 edition of 4.1).
- c) A new method for representing trademarks has been added (see 4.2);
- d) The following grades were added. LM-09-05-A1, LM-09-05-A2, LM-09-05-A3, LM-09-05-A4, and LM-09-05-B (see Table 1);
- e) The thermal stability index and its test requirements have been removed (see Tables 1 and 5.1 in the 2013 edition).
- f) The external quantum efficiency, thermal quenching, high-pressure accelerated aging performance, and high-temperature and high-humidity performance indicators and their test requirements have been added (see...). Table 1, 6.1).
- g) The test method was changed (see Chapter 6, Chapter 5 of the 2013 edition);
- h) The inspection rules have been changed (see Chapter 7, Chapter 6 in the 2013 edition);

i) Changes were made to the markings, packaging, shipping, storage, and accompanying documentation (see Chapter 8, Chapter 7 of the 2013 edition). 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/TC 229). This document was drafted by: GRINM Rare Earth New Materials Co., Ltd., Jiangsu Borui Optoelectronics Co., Ltd., and Xiamen Rare Earth Materials Research Institute, Institute, Jiangmen Keheng Industrial Co., Ltd., Baotou Rare Earth Research Institute, Jiangxi University of Science and Technology, and GRINM Rare Earth High Technology Co., Ltd. The main drafters of this document are: Liu Ronghui, Yu Xiaojiao, Liu Yuanhong, Liang Chao, Lin Fulin, Li Yunfeng, Song Biqing, Wang Jing, Ye Xinyu, and Tang Zongquan. Wang Haoyang, Xie Shihui, Wang Wei, Gao Jianhua, Wang Zhongzhi, Li Yan, Qin Shaowei. This document was first published in 2013, and this is its first revision. Rare earth silicate phosphor for LEDs

1. Scope This document specifies the classification and grade designation methods, technical requirements, test methods, and inspection rules for rare earth silicate phosphors used in LEDs. Packaging, marking, transportation, storage and accompanying documents. This document applies to the production and testing of rare earth silicate phosphors prepared by high-temperature solid-state methods, co-precipitation methods, etc.

Note. Rare earth silicate phosphors used in LEDs emit green, yellow-green, yellow, and orange-red light when excited by a light source with wavelengths from 250 nm to 500 nm. They are mainly used in the manufacture of Prepare LED light-emitting devices that are excited by ultraviolet or blue LED chips.

4 Product classification and brand designation methods

4.1 Classification The products are classified according to their structural composition into green, yellow-green, and yellow phosphors with a $(\text{Sr}, \text{Ba})_2\text{SiO}_4\cdot\text{Eu}_2$ structure, and $(\text{Sr}, \text{Ba})_3\text{SiO}_5\cdot\text{Eu}_2$ phosphors. There are two main categories of phosphors. orange-red phosphors and red phosphors.

4.2 Designation Method The brand designation consists of the first letter of the English word for luminescent material, Arabic numerals, and letters, and is divided into four levels.

- a) The first level is represented by the first letters of the English word "LM" for luminescent materials;
- b) The second level indicates the product's function and category, represented by the specified "09" (the product can be powered by ultraviolet or blue light LED chips). excitation);
- c) The third level indicates the product's system, which belongs to the silicate system, and is represented by "05";

d) The fourth level, represented by the letter A, is a $(\text{Sr},\text{Ba})_2\text{SiO}_4\cdot\text{Eu}_2$ structure silicate phosphor, with serial numbers 1-4 indicating different emission levels. The peak wavelength range is represented by the letter B. $(\text{Sr},\text{Ba})_3\text{SiO}$

5. Eu_2 structure silicate phosphor. Each level is separated by the separator "".

5 Technical Requirements

5.1 Product Performance The performance of the product shall meet the requirements specified in Table

1.If the buyer has special requirements, they shall be determined through negotiation between the supplier and the buyer.

5.2 Appearance Quality The product should be a green, yellow-green, yellow, or orange-red powder, and should be uniform, clean, and free of visible impurities.

6.1 Product performance testing

6.1.1 The inspection of chromaticity coordinates shall be carried out in accordance with the provisions of GB/T 23595.3.

6.1.2 The excitation wavelength and emission peak wavelength shall be tested in accordance with GB/T 23595.1.

6.1.3 The test of relative brightness shall be carried out in accordance with the provisions of GB/T 23595.2.

6.1.4 The inspection of the center particle size deviation range shall be carried out in accordance with the provisions of Method 1 in GB/T 20170.1-2006.

6.1.5 Particle size distribution dispersion test. D10, D50, and D90, measured according to Method 1 of GB/T 20170.1-2006, are determined based on the formula... $(D90-D10)/D50$ is calculated.

6.1.6 The external quantum efficiency shall be tested in accordance with GB/T 39492, and the excitation wavelength shall be 450 nm.

6.1.7 The thermal quenching performance shall be tested in accordance with the provisions of GB/T 23595.7.

6.1.8 The test of high-pressure accelerated aging performance shall be carried out in accordance with the provisions of GB/T 23595.8.

6.1.9 The test of high temperature and high humidity performance shall be carried out in accordance with the provisions of GB/T 23595.4.

6.1.10 Density testing shall be conducted in accordance with GB/T 14634.5.

6.2 Appearance Quality Inspection Lay the product flat on a piece of white paper and visually inspect it under natural diffused light.

7.1 Inspection and Acceptance

7.1.1 The product shall be inspected by the supplier or a third party to ensure that the product quality meets the requirements of this document, and a product quality certificate shall be completed.

7.1.2 The buyer shall inspect the received products in accordance with the provisions of this document. If the inspection results do not conform to the provisions of this document, the buyer may request an inspection upon receipt of the products. The buyer shall notify the supplier within two months from the date of purchase, and the matter shall be resolved through negotiation between the supplier and the buyer. If arbitration is required, it may be conducted by a mutually agreed-upon organization, and the arbitration decision shall be made within the specified timeframe. The parties took samples together.

7.2 Batching Products should be submitted for inspection in batches, and each batch should consist of products of the same brand.

7.3 Inspection Items Each batch of products should be tested for chromaticity coordinates, emission peak wavelength, relative brightness, center particle size deviation range, particle size distribution dispersion, and appearance. Quality inspection. Excitation wavelength, external quantum efficiency, thermal quenching performance, high-pressure accelerated aging performance, high-temperature and high-humidity performance, density, etc., are not mandatory inspections. If the buyer has inspection requirements for non-mandatory inspection items of the product, the supplier and the buyer may negotiate and determine them separately.

7.4 Sampling

7.4.1 Sampling for Performance Testing The number of samples (bottles) per batch shall be in accordance with the provisions of Table 2; the sampling weight of each sample (bottle) shall be in accordance with the provisions of Table 3.

7.4.2 Sampling of Appearance Quality Randomly select 3 bottles of product, with a sample weight of

0.5 g to

1.0 g from each bottle, and conduct an appearance quality inspection on each. If the batch of products is not greater than... When there are 3 bottles, all of them should be sampled.

7.5 Judgment of Test Results

7.5.1 The test results shall be rounded in accordance with the provisions of GB/T 8170 and