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

GB/T 45758-2025

**Determination of bacterial reduction rate by photocatalytic materials under
indoor lighting environment - Semi-dry method for estimating antibacterial
activity on the actual environmental bacteria contamination surface**

**室内照明环境下光催化材料细菌减少率的测定 半干法估算实际环境细菌污染表面
抗菌活性**

(English Translation)

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is equivalent to ISO 22551:2020 "Fine ceramics (advanced ceramics, advanced technical ceramics) - Semiconductors for indoor lighting environments" Determination of Bacteria Reduction Rate of Photocatalytic Materials - Semi-dry Method for Estimating Antibacterial Activity on Surfaces Contaminated by Bacteria in Actual Environments.

The following minimal editorial changes have been made to this document.

--- To coordinate with the existing standard, the name of the standard will be changed to "Determination of Bacteria Reduction Rate of Photocatalytic Materials under Indoor Lighting Environment - Semi-dry Method" Estimating antimicrobial activity on surfaces contaminated by bacterial species in real environments.

1 Scope

This document describes a method for testing the antibacterial properties of a surface containing indoor light-responsive photocatalytic materials.

The number of surviving microorganisms after the test is used to characterize the antibacterial activity value.

On the other hand, the antibacterial performance of photocatalytic materials was evaluated by inhibiting microbial contact infection under indoor lighting conditions.

This document is applicable to indoor light-responsive photocatalytic materials used in building materials of different types, uses and shapes, such as boards, sheets, This document does not apply to powdered, granular and porous indoor light-responsive

photocatalytic materials, nor to fabrics or textiles. fabric.

This document is applicable to indoor light-responsive photocatalytic materials with antibacterial functions, and is not applicable to materials such as water pollutant degradation, self-cleaning, and anti-fog Indoor light-responsive photocatalytic materials with other uses and air purification performance.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

ISO 14605 Fine ceramics (advanced ceramics, advanced technical ceramics) - Testing of semiconductor optoelectronic materials for indoor lighting environments - Light sources

ISO 17094:2014 Fine ceramics (advanced ceramics, advanced technical ceramics) - Resistance of semiconductor photocatalytic materials to indoor lighting conditions

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Photocatalyst

Under the stimulation of certain light sources, it can catalyze the decomposition and removal of pollutants in air and water, deodorize, resist bacteria and fungus through redox reaction. Substances with functions such as antibacterial, self-cleaning and anti-fog.

3.2 Indoor-light-activephotocatalyst

Photocatalysts (3.1) that function under the irradiation of artificial light sources used for general lighting.