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

GB/T 47399-2026

**Test method for the antibacterial activity of sanitary ware -
Luminescence method**

卫生陶瓷抗菌性能试验方法 荧光法

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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 by the China Building Materials Federation. This document is under the jurisdiction of the National Technical Committee on Standardization of Building and Sanitary Ceramics (SAC/TC249). This document was drafted by: Taizhou Municipal Institute of Product Quality and Safety Inspection and Testing, Hengjie Sanitary Ware Group Co., Ltd., and Xianyang Ceramic Research and Design Institute. Limited Liability Company, Tangshan Customs Comprehensive Technical Service Center, Shanghai Institute of Quality Supervision and Inspection Technology Co., Ltd., Huida Sanitary Ware Co., Ltd. The company, Anhui Provincial Institute of Product Quality Supervision and Inspection, Foshan Municipal Center for Quality and Metrology Supervision and Testing, and Beijing Building Materials Inspection and Research Institute Co., Ltd. Limited Liability Company. The main drafters of this document are. Li Wenjie, Xu Huayue, Zhang Yihan, Wang Bo, Weng Xiaowei, Peng Zhiqiu, Tang Minjun, Zhang Xuesong, Ding Zheyu, and Du Zhilin. Wu Shaosong, Di Ping, Huang Mingjin, Dai Yunxiang. Test Method for Antibacterial Properties of Sanitary Ceramics. Fluorescence Method

1 Scope

GB/T 47399-2026 is the Chinese national standard covering testing the antibacterial claim on a glazed ceramic surface by ATP luminescence - a faster route to a result than plate counting, on a product where the claim is made constantly and verified rarely. First edition, in force since 1 October 2026. It was issued on 31 March 2026 and takes effect on 1 October 2026, as a first edition. The document is under the responsibility of the China Building Materials Federation. 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 describes the principle, general requirements, reagents and culture media, and setup for testing the antibacterial properties of antibacterial sanitary ceramics and their products using a fluorescence method. Preparation and materials, test strains, samples and pretreatment, testing procedures, result calculation, test reports, etc. This document applies to the testing of the antibacterial properties of antibacterial sanitary ceramics and their products, as well as antibacterial sanitary ceramics modified with metal ions and rare earth elements.

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 6682 Specifications and test methods for water used in analytical laboratories

GB 19489-2008 General Requirements for Laboratory Biosafety
SN/T 5432-2023 Determination of antibacterial properties of antibacterial textiles - ATP fluorescence analysis method

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 The product has the ability to kill and inhibit the growth and reproduction of bacteria.

3.2 Antibacterial ceramic Ceramic products with antibacterial properties on the surface.

3.3 control sample Ceramic samples or silicate glass plates used to verify the growth conditions of test bacteria, without the addition of any antibacterial ingredients.

3.4 fluorescence method The fluorescence intensity (IB) of viable bacterial cells in the sample solution was determined using an adenosine triphosphate (ATP) fluorometer, and the result was calculated based on the logarithmic value of the viable bacterial content. The method for calculating the corresponding viable bacterial content (CB) from the lgCB-logarithmic fluorescence intensity standard curve is as follows:

4.Principles Bacteria were quantitatively inoculated onto the antibacterial sanitary ceramic samples to be tested and the control samples, and a contact culture method involving surface coating and sealing in petri dishes was used. The formula was used to perform immediate elution and elution after incubation, respectively. The fluorescence intensity (IB) of the residual viable bacteria in the recovered solution was measured using a fluorescence

method, and the result was calculated according to the formula. The antibacterial rate or antibacterial activity value is calculated to evaluate the antibacterial performance of sanitary ceramic samples.

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