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

GB/T 45774.2-2025

**Quantitative determination of antibacterial activity of ceramic
tile surfaces - Test methods - Part 2: Ceramic tile surfaces with
incorporated photocatalytic antibacterial agents**

陶瓷砖表面抗菌活性的定量测定 试验方法 第2部分：含有光催化抗菌剂陶瓷砖表面

(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 part 2 of GB/T 45774 "Test method for quantitative determination of antimicrobial activity on ceramic tile surfaces".

The following parts have been published.

--- Part 1: Surfaces of ceramic tiles containing antimicrobial agents;

--- Part 2: Surface of ceramic tiles containing photocatalytic antimicrobial agents.

This document is equivalent to ISO 17721-2:2021 "Test method for quantitative determination of antimicrobial activity on ceramic tile surfaces - Part 2: Containing Photocatalytic Antibacterial Agent for Ceramic Tile Surfaces.

Introduction

The antibacterial activity of ceramic tiles is the number of viable cells found after inoculation and culture of bacteria in ceramic tiles with antibacterial properties and blank controls.

The logarithmic difference of the difference is used to characterize the antibacterial performance of ceramic tile products. Antibacterial property has become one of the important indicators for evaluating the performance of ceramic tiles.

The standardization work has attracted widespread attention at home and abroad. In this regard, the ISO 17721 series of standards developed by the International Organization for Standardization (ISO) is Method standards in the fields of manufacturing, consumer health and hygiene are divided into two categories. antibacterial ceramic tiles with antimicrobial agents and photocatalytic antibacterial ceramic tiles.

China has already carried out domestic conversion work for this series of standards.

GB/T 45774 "Test method for quantitative determination of antimicrobial activity on ceramic tile surfaces" is a method standard for the antimicrobial activity of ceramic tile surfaces.

This standard aims to describe the test method for the antibacterial activity of antimicrobial ceramic tiles and photocatalytic antibacterial ceramic tiles, and is intended to consist of two parts.

--- Part 1: Surface of ceramic tiles containing antimicrobial agents. The purpose is to describe the test method for the antimicrobial activity of antimicrobial ceramic tiles containing antimicrobial agents.

Inspectors provide guidance.

--- Part 2: Surface of ceramic tiles containing photocatalytic antibacterial agents. The purpose is to describe the antibacterial activity test of photocatalytic antibacterial ceramic tiles. Provide guidance to testers.

Test method for quantitative determination of antimicrobial activity on ceramic tile surfaces
Part 2: Surface treatment of ceramic tiles containing photocatalytic antimicrobial agents

1 Scope

This document describes a test method for the antimicrobial activity of glazed and unglazed ceramic tiles containing photocatalytic antimicrobial agents.

This document does not include the side effects of photocatalytic antimicrobial treatment on the surface of ceramic tiles, such as chemical corrosion resistance, stain resistance and small color changes.

For chemical resistance, see ISO 10545-13, for stain resistance, see ISO 10545-14, for small color difference, see ISO 10545-16.

This document does not include other properties of photocatalytic ceramics, such as water pollutant decomposition, self-cleaning, anti-fog and air purification.

This involves the evaluation of ceramic surfaces treated with surface disinfectants or agents that have residual activity over a period of time.

The test results obtained by this document are only applicable to this document and the test conditions specified in it.

The antibacterial activity under different conditions cannot reflect the activity under various factors such as temperature, humidity, different bacterial species, and nutritional conditions.

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 17721-1 Test method for the quantitative determination of antimicrobial activity on ceramic tile surfaces - Part 1: Surface treatment of ceramic tiles containing antimicrobial

agents Note. GB/T 45774.1-2025 Test method for quantitative determination of antimicrobial activity on ceramic tile surfaces Part 1: Surface treatment of ceramic tiles containing antimicrobial agents (ISO 17721-1:2021, IDT)

3 Terms and Definitions

For the purposes of this document, the terms and definitions defined in ISO 17721-1 and the following apply.

photocatalyst

Substances that perform various functions based on oxidation and reduction reactions under ultraviolet (UV) irradiation, including decomposition and purification of air and water pollution it has the functions of deodorizing, antibacterial, self-cleaning and anti-fog.

4.1 Strains

WARNING. The handling and manipulation of potentially hazardous microorganisms requires high technical skills and may be subject to existing national legislation and regulations.

Only personnel trained in microbiological techniques should perform such tests. Strict disinfection, sterilization and laboratory hygiene procedures should be followed.

Require.

The bacteria used for testing were.

a) *Escherichia coli*;