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

GB/T 45764-2025

**Fine ceramics - Determination of photocatalytic activity of
surfaces in an aqueous medium - Degradation of methylene
blue**

精细陶瓷 水介质中光催化剂表面活性的测定 亚甲基蓝降解法

(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 modified to adopt ISO 10678:2024 "Fine ceramics (advanced ceramics, advanced technical ceramics) - Determination of the Surface activity of photocatalysts in aqueous media.

Compared with ISO 10678:2024, this document has many structural adjustments. The structural number changes between the two documents are shown in the table below. See Appendix A. This document has many technical differences compared to ISO 10678:2024.

A list of these technical differences and their causes is given in Appendix B. The following editorial changes have been made to this document.

--- To coordinate with the existing standard, the name of the standard was changed to "Determination of Surface Activity of Photocatalysts in Fine Ceramics and Aqueous Media" Blue degradation method;

--- Added Appendix A (informative) "Comparison of this document with ISO 10678:2024 structure numbers";

--- Added Appendix B (informative) "Technical differences between this document and ISO 10678:2024 and their causes";

--- Deleted Appendix A (informative) and Appendix C (informative).

1 Scope

This document describes a method for photocatalytic degradation of methylene blue (MB) molecules in aqueous media under ultraviolet (UV) irradiation.

This method is used to determine the photocatalytic activity of the photocatalyst surface and characterize the degradation of organic molecules by the photocatalyst surface under

ultraviolet light irradiation. ability.

This document is applicable to the evaluation of surface activity of solid photocatalysts.

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.

GB/T 8170 Rules for rounding off values and expression and determination of limit values

GB/T 26791 Glass cuvettes

GB/T 26813 Double-beam UV-visible spectrophotometer

GB/T 27025 General requirements for the competence of testing and calibration laboratories (GB/T 27025-2019, ISO /IEC 17025:2017, IDT)

JJG879 Verification Procedure for Ultraviolet Radiation Illuminance Meters

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Photochemical conversion rate of photocatalysts

Note: It is expressed in moles per square meter, i.e. mol/(m²h).

3.2 Photonic efficiency

zeta MB One photon can induce the decolorization of one dye molecule. The ratio of photons that can actually induce the decolorization of methylene blue to all incident photons is value(%).

3.3 Testing solution

Methylene blue solution used to determine the photocatalytic activity of photocatalyst surfaces.