
**Fine ceramics (advanced ceramics,
advanced technical ceramics) —
Test method for determination
of photocatalytic activity on
semiconducting photocatalytic
materials by dissolved oxygen
consumption**

*Céramiques techniques — Méthode d'essai relative à la détermination
de l'activité photocatalytique sur matériaux photocatalytiques
semiconducteurs par la consommation d'oxygène dissous*

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Foreword

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 206, *Fine ceramics*.

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Introduction

International Standards covering test methods for determination of photocatalytic activity have been published. A wide variety of photocatalytic functions, such as water and air purification, antibacterial effect, and self-cleaning, require different evaluation methods. However, much easier methods to evaluate a common semiconducting photocatalytic activity are strongly demanded, in particular in research and development activities for testing of performance of semiconducting photocatalyst and photocatalytic materials under development.

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Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for determination of photocatalytic activity on semiconducting photocatalytic materials by dissolved oxygen consumption

1 Scope

This document specifies the test method for determination of concentration of dissolved oxygen consumed due to photocatalytic oxidation of phenol in aqueous phase by semiconducting photocatalytic substances. The method is applicable to powder test sample or film test piece of semiconducting photocatalytic material targeting water contaminants. This test method is not applicable for evaluating the materials conjugated with other base material, such as organic binder which can also be decomposed by the photocatalytic activity.

This document is applicable to the test method for the activity of powder test sample or film test piece of semiconducting photocatalytic material targeting water contaminants.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 5814, *Water quality — Determination of dissolved oxygen — Electrochemical probe method*

ISO 10677, *Fine ceramics (advanced ceramics, advanced technical ceramics) — Ultraviolet light source for testing semiconducting photocatalytic materials*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 20507 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

semiconducting photocatalyst

substance that displays photocatalytic action based on its electronic band structure

Note 1 to entry: This applies to metal oxides like titanium dioxide and sulfides. Photocatalysts which are not semiconducting includes metal complexes.

3.2

photocatalytic materials

material in which or on which the photocatalyst is added by coating, impregnation, mixing, etc.

Note 1 to entry: Materials include ceramic, metal, plastic, cloth, etc. for general purpose.