BS ISO 22197-1:2016

BSI Standards Publication

Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for air-purification performance of semiconducting photocatalytic materials

Part 1: Removal of nitric oxide

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National foreword

This British Standard is the UK implementation of ISO 22197-1:2016. It supersedes BS ISO 22197-1:2007 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee RPI/13, Advanced technical ceramics.

A list of organizations represented on this committee can be obtained on request to its secretary.

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INTERNATIONAL STANDARD

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Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for air-purification performance of semiconducting photocatalytic materials —

Part 1: Removal of nitric oxide

Céramiques techniques — Méthodes d'essai relatives à la performance des matériaux photocatalytiques semi-conducteurs pour la purification de l'air —

Partie 1: Élimination de l'oxyde nitrique

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Contents

Page

Foreword ..... **iv**

1 Scope **1**

2 Normative references **1**

3 Terms and definitions **2**

4 Symbols **2**

5 Principle **3**

6 Apparatus **3**
- 6.1 Test equipment 3
- 6.2 Test gas supply 3
- 6.3 Photoreactor 6
- 6.4 Light source 6
- 6.5 Analyser of pollutants 6

7 Test piece **6**

8 Procedure **6**
- 8.1 Pretreatment of test piece 6
- 8.2 Pollutant-removal test 7
- 8.3 Elution test 8

9 Calculation **8**
- 9.1 Calculation method 8
- 9.2 Amount of NO_x adsorption by the test piece 9
- 9.3 Amount of NO removed by the test piece 9
- 9.4 Amount of NO_2 formed by the test piece 9
- 9.5 Amount of NO_x desorbed from the test piece 10
- 9.6 Net amount of NO_x removed by the test piece 10
- 9.7 Nitrogen eluted from the test piece 10
- 9.8 Recovery of washing with water 11

10 Test method for test pieces with lower performance **11**

11 Test report **11**

Annex A (informative) **Results of round-robin test** **12**

Bibliography **13**

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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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.

The committee responsible for this document is ISO/TC 206, *Fine ceramics*.

This second edition cancels and replaces the first edition (ISO 22197-1:2007), which has been technically revised with the following changes:

— deletion of reference to ISO 4677-1 (withdrawn) from Clause 2 and 8.2.2;

— addition of a definition of "dark condition" (3.7);

— change of air-flow rate measurement to a wet gas basis (6.2);

— change of tolerance on dimensions of test piece in Clause 7;

— update of procedure in Clause 8 to reflect the latest knowledge;

— addition of a test method for test pieces with lower performance (new Clause 10).

A list of all parts in the ISO 22197 series can be found on the ISO website.

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INTERNATIONAL STANDARD ISO 22197-1:2016(E)

Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for air-purification performance of semiconducting photocatalytic materials —

Part 1: Removal of nitric oxide

1 Scope

This document specifies a test method for the determination of the air-purification performance of materials that contain a photocatalyst or have photocatalytic films on the surface, usually made from semiconducting metal oxides, such as titanium dioxide or other ceramic materials, by continuous exposure of a test piece to the model air pollutant under illumination with ultraviolet light. This document is intended for use with different kinds of materials, such as construction materials in flat sheet, board or plate shape, that are the basic forms of materials for various applications. This document also applies to materials in honeycomb-form and to plastic or paper materials if they contain ceramic microcrystals and composites. This document does not apply to powder or granular photocatalytic materials.

This test method is usually applicable to photocatalytic materials produced for air purification. This method is not suitable for the determination of other performance attributes of photocatalytic materials, i.e. decomposition of water contaminants, self-cleaning, antifogging and antibacterial actions. It concerns the removal of nitric oxide.

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 4892-1, *Plastics — Methods of exposure to laboratory light sources — Part 1: General guidance*

ISO 4892-3, *Plastics — Methods of exposure to laboratory light sources — Part 3: Fluorescent UV lamps*

ISO 5725-2, *Accuracy (trueness and precision) of measurement methods and results — Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method*

ISO 6145-7, *Gas analysis — Preparation of calibration gas mixtures using dynamic volumetric methods — Part 7: Thermal mass-flow controllers*

ISO 7996, *Ambient air — Determination of the mass concentration of nitrogen oxides — Chemiluminescence method*

ISO 10304-1, *Water quality — Determination of dissolved anions by liquid chromatography of ions — Part 1: Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulfate*

ISO 10523, *Water quality — Determination of pH*

ISO 80000-1, *Quantities and units — Part 1: General*

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

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