

Photocatalysis - Anti-soiling chemical activity using  
adsorbed organics under solid/solid conditions - Part 1:  
Dyes on porous surfaces

## EESTI STANDARDI EESSÕNA

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English Version

**Photocatalysis - Anti-soiling chemical activity using  
adsorbed organics under solid/solid conditions - Part 1:  
Dyes on porous surfaces**

Photocatalyse - Activité chimique anti-salissures à  
l'aide de matières organiques adsorbées dans des  
conditions solide/solide - Partie 1 : Colorants sur des  
surfaces poreuses

Photokatalyse - Schmutzabweisende, chemische  
Aktivität unter Verwendung adsorbierender  
organischer Stoffe im Zustand fest/fest - Teil 1:  
Farbstoffe auf porösen Oberflächen

This European Standard was approved by CEN on 14 November 2016.

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# Contents

Page

|   |    |
|---|----|
| European foreword.....  | 4  |
| 1 Scope.....  | 5  |
| 2 Normative references.....   | 5  |
| 3 Terms and definitions .....   | 5  |
| 4 Symbols and abbreviations .....   | 6  |
| 5 Principle .....   | 7  |
| 6 Instruments.....  | 7  |
| 6.1 Spraying system.....  | 7  |
| 6.2 Analytical balance.....   | 9  |
| 6.3 Diffuse Reflectance Spectrometer.....                                 | 10 |
| 6.4 Light source.....   | 10 |
| 6.5 Other experimental needs.....   | 10 |
| 7 Materials.....  | 10 |
| 7.1 Dyes used .....   | 10 |
| 7.2 Preparation of Solutions to Spray.....                                | 11 |
| 7.3 Test Samples.....   | 11 |
| 7.4 Other experimental needs.....   | 11 |
| 8 Procedure.....  | 11 |
| 8.1 General Aspects .....   | 11 |
| 8.1.1 General.....  | 11 |
| 8.1.2 Initial set up and calibration.....                                 | 12 |
| 8.1.3 Measurement of the Reflectance Spectra of the Surface.....          | 12 |
| 8.2 Optimization of the Experimental Setup .....                          | 12 |
| 8.2.1 General.....  | 12 |
| 8.2.2 Optimization of the Spraying Distance and Flow.....                 | 12 |
| 8.2.3 Measurement of the Spraying Flow Rate.....                          | 12 |
| 8.2.4 Evaluation of the Deposition Rate (DR) .....                        | 13 |
| 8.3 Test Procedure.....   | 13 |
| 8.3.1 Evaluation of the Dirt Parameter Calibration Function.....          | 13 |
| 8.3.2 Choice of Test Sample Covered with Dye for Irradiation.....         | 14 |
| 8.3.3 Evaluation of the Photocatalytic Self-cleaning Performance .....    | 14 |
| 8.3.4 Results.....  | 15 |
| 9 Calculation .....   | 15 |
| 9.1 General.....  | 15 |
| 9.2 Spraying Flow ( $f$ ) .....   | 15 |
| 9.3 Dirt Parameter .....  | 16 |
| 9.4 Covered Area.....   | 16 |
| 9.5 Deposition Rate.....  | 17 |
| 9.6 Standard Spraying Time .....  | 17 |
| 9.7 Dirt Parameter Calibration Function.....                              | 18 |
| 9.8 Remaining Dye ( $\beta_i$ ) after Different Times of Irradiation..... | 18 |
| 9.9 Dye Half-Life.....  | 18 |
| 10 Precision and Reproducibility.....                                     | 19 |

|                              |   |           |
|------------------------------|---|-----------|
| <b>11</b>                    | <b>Test Method for Samples with Low to Negligible Performance .....</b>     | <b>19</b> |
| <b>12</b>                    | <b>Test Report.....</b>   | <b>19</b> |
| <b>Annex A (informative)</b> | <b>Typical Experimental Data .....</b>                                      | <b>21</b> |
| <b>A.1</b>                   | <b>General .....</b>  | <b>21</b> |
| <b>A.2</b>                   | <b>Optimization of the Spraying Conditions (example) .....</b>              | <b>21</b> |
| <b>A.3</b>                   | <b>Measurement of the Spraying Mass Flows (example) .....</b>               | <b>22</b> |
| <b>A.4</b>                   | <b>Measurement of the Covered Area (example) .....</b>                      | <b>23</b> |
| <b>A.5</b>                   | <b>Evaluation of the Dirt Parameter Calibration Function (example).....</b> | <b>25</b> |
| <b>A.6</b>                   | <b>Evaluation of the Self-cleaning Effect (example).....</b>                | <b>27</b> |
| <b>Bibliography</b>          | <b>.....</b>  | <b>29</b> |

## European foreword

This document (EN 16845-1:2017) has been prepared by Technical Committee CEN/TC 386 "Photocatalysis", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2017, and conflicting national standards shall be withdrawn at the latest by September 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

EN 16845, *Photocatalysis — Anti-soiling chemical activity using adsorbed organics under solid/solid conditions*, is dedicated to anti-soiling chemical activity using adsorbed organics under solid/solid conditions and is constituted by the following parts:

- *Part 1: Dyes on porous surfaces;*
- *Part 2: Simulated weathering conditions.*

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## 1 Scope

This European Standard specifies a test method for the evaluation of the photocatalytic self-cleaning performance of materials showing photocatalytic activity, usually based on semiconducting metal oxides such as titanium dioxide, by the measurement under solid/solid conditions of the decolouring ability under irradiation with ultraviolet light (UV-A) of a test sample on which a dye solution is sprayed and dried.

This European Standard is intended for use with opaque and rough surfaces of different kinds, such as construction materials in flat sheet, board or plate shape, that are the basic forms of materials for various applications.

This European Standard also applies to fabric, plastic or composites containing photocatalytic materials that are not soluble in acetone. This European Standard does not apply to photocatalytic glass, granular materials (unless they are deposited in compact films or layers over flat solid surface) and flat non porous materials.

The method evaluates only the self-cleaning ability of the material under ultraviolet light irradiation. It cannot be applicable to evaluate other performance attributes of photocatalytic materials, i.e. decomposition of water contaminants in liquid or gas phases contacting the material, and antifogging and antibacterial actions.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

CEN/TS 16599, *Photocatalysis - Irradiation conditions for testing photocatalytic properties of semiconducting materials and the measurement of these conditions*

CEN/TS 16981, *Photocatalysis — Glossary of terms*

EN ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025:2005)*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in CEN/TS 16981 and the following apply.

### 3.1

#### **self-cleaning**

ability of a material to maintain clean or to clean itself if soiled on its surface

### 3.2

#### **photocatalytic self-cleaning**

self-cleaning ability of a material as a consequence of the irradiation of the material surface with UV-VIS-IR radiation

### 3.3

#### **spraying distance**

distance from the outlet of the spraying gun (see experimental setup) and the surface of the test sample