

# DIN EN 16845-1:2017-05 (E)

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

---

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 (i) after Different Times of Irradiation .....	18
9.9 Dye Half-Life .....	18

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