

TEST REPORT

Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for air purification performance of photocatalytic materials — Part 3: Removal of toluene JIS R 1701-3:2008

On behalf of:

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1. Subject matter of the work

The subject matter of this test report is the determination of the air purification performance of materials that contain a photocatalyst or have a photocatalytic film on the surface.

2. Test method

Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for air-purification performance of semiconducting photocatalytic materials — Part 3: Removal of toluene (JIS R 1701-3:2008)

3. Overview of the tested samples

Sagancoat Photocatalyst coating agent TPX-HL

4. Reporting matters under the provision of JIS

a) JIS standard number; test period; laboratory conditions; tester

JIS R 1701-3:2008

10/1/2012; 23.5±1°C, 65±1%

11/1/2012; 23.5±1°C, 65±1%

12/1/2012; 23.5±1°C, 65±1%

Norihisa Muramatsu

b) Description of the sample (material, size, shape, etc.)

Photocatalyst coated smooth glass plate with the dimensions : 50 mm×100 mm×1 mm

c) Description of test equipment

1. Precision humidity generator: SRG-1R-1L (DaiichiKagaku Inc.)

Humidity discharge range: 0-100%rh; Rated air volume: 1.0 L/min

2. Hydrogen flame ionization detector: GC-2014AFF (Shimadzu)

Detection limit of toluene: 0.01 ppm

3. Gas blender: GB-2C (Kofloc)

Line 1: ≤1.0 L/min; Line 2: ≤50 mL/min

4. UV irradiation device: custom-made item (Toho Sanso Kogyo Co.,Ltd.)

10 W/m² at the surface of the sample

5. Reactor: custom-made item (Eda Shokai Inc.)

Reactor under the provision of JIS R 1701-3:2008

6. Tubing: custom-made item (Toho Sanso Kogyo Co.,Ltd.)

SUS and Teflon

d) Testing conditions

1. Supply concentration of toluene: 1.0 ppm
2. Conditions of pretreatment: 20 W/m², exposure over 16 h, continual
3. Water-vapour concentration: 1.56 vol%
4. Flow rate: 0.5 L/min
5. Detailed description of light source: FL10BLB×2 (Toshiba)
6. Irradiance: 10 W/m² at the surface of the sample
7. Number of sample: 1
8. Analyser used: Hydrogen flame ionization detector with a methanizer furnace
9. Radiometer used: UV power meter C9536-01, H9958-01(Hamamatsu Photonics)

e) Removal percentage of toluene during 1 h of irradiation

For reference, removal percentage of toluene

Q is the quantity of toluene removed during 1 h of irradiation (μmol/h)

R is the removal percentage of toluene (%)

sample name	Q(μmol/h)	R(%)
TPX-HL	1.5	56.1

f) Special report

- N/A