

Test Report N. 2127/EL MI

Test method : ISO 27447:2009

"Fine ceramics (advanced ceramics, advanced technical ceramics)
- Test method for antibacterial activity of semiconducting
photocatalytic materials"

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VIA RADICI NORD 112

42014 CASTELLARANO (MO)

Modena 10/07/2012

Receipt N.: 2.127/EL MI	Date of receipt : 18/06/12	Analysis start date: 18/06/12	Analysis end date: 05/07/12
Material:	Ceramics materials		
Product:	Ceramic tile		
Sample:	WHITE GROUND ACTIVE 60x60 Test information: - treated specimens : 50 x 50 mm square, 9 mm thickness; - not-treated specimens : 50 x 50 mm square, 9 mm thickness; - all specimens are rinsed with distilled water and autoclaved at 121°C for 30 minutes before the test; - fluorescent UV lamp : mercury-vapor lamp 18 W (PHILIPS PL-L 18W/10/4P); - ultraviolet light radiometer : DELTA OHM model HD2102.2 - serial number 10008472 model probe : LP471 UVA; - UV irradiation intensity : 0.25mW/cm ² - time exposure : 8h; - test bacteria : Staphylococcus aureus ATCC 43300 methicillin resistant (MRSA); - inoculated test bacteria suspension : 0.15 ml; - adhesive film : polypropylene film 40 x 40 mm square - transparency rate = 85% for 340-380 nm range; - moisture preservation glass : borosilicate glass 1.1 mm thickness BOROFLOAT SHOTT		
Sampling:	made by customer		
Date of sampling:	18/06/12		

Test	Method	UM	Result
Antibacterial activity photocatalytic materials - S. aureo ATCC 43300*	ISO 27447:2009 - Film adhesion method		
<i>N. bacteria inoculated*</i>		cells/ml	1.500.000
<i>A - average number of bacteria non-treated specimens after inoculation*</i>		cells/ml	230.000
<i>BL - Average number of bacteria non-treated specimens after UV irradiation*</i>		cells/ml	108.000
<i>CL - average number of bacteria photocatalytic treated specimens after UV irradiation*</i>		cells/ml	10

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Test	Method	UM	Result
<i>RL - photocatalytic antibacterial activity after UV irradiation*</i>		Log10	4,0
<i>Reduction of bacteria from non-treated specimens after UV irradiation*</i>		%	99,991
<i>BD - Average number of bacteria non-treated specimens after dark treatment*</i>		cells/ml	400.000
<i>CD - Average number of bacteria photocatalytic specimens after dark treatment*</i>		cells/ml	37.000
<i>Delta R - photocatalytic antibacterial activity value with UV irradiation*</i>		Log10	3,0

NOTE:

the test assesses the survival of bacteria type *Staphylococcus aureus* ATCC 43300 methicillin resistant (MRSA) on the surface of WHITE GROUND ACTIVE 60 x 60 subjected to UV radiation for 8h.
Under test condition specified in the description sample, the bacterial reduction is equal to 99.991%.

TECHNICAL MANAGER

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LABORATORY MANAGER

Gianlorenzo Silvagni

(*) Analysis not accredited by Accredia >>> PNN: Internal method

Microbiological results are in accordance with ISO 7818:2007.

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