



PRODUCT PERFORMANCE TESTING LABORATORY

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October 15, 2020

Italcer
Attn: Elena Vandelli
Via Emilia Ovest 53/a
Rubiera, 42048
ITALY

Dear Ms. Vandelli,

Tile Council of North America has tested the samples you submitted. Test report TCNA-0492-20 – Antibacterial is enclosed. If you have any questions or concerns, please contact us.

Best Regards,

TILE COUNCIL OF NORTH AMERICA, INC.

Dr. Jyothi Rangineni
Research Scientist
Enclosures



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TEST REQUESTED BY: Italcer
Attn: Elena Vandelli
Via Emilia Ovest 53/a
Rubiera, 42048
ITALY

TEST SUBJECT MATERIAL: Identified by client as: **“B, B3”**

TEST DATE: 8/27/2020 - 9/30/2020

TEST PROCEDURE:
ISO 27447:2019(E): Test method for antibacterial activity of semiconducting photocatalytic materials – E. coli and S. aureus.

TEST CONDITIONS:

Test sample size: 50 mm x 50 mm
Test bacteria: *E. coli* ATCC 8739
S. aureus ATCC 6538P
Volume of test suspension applied on test sample: 0.15 mL
UV exposure intensity: 0.25 mW/cm² and 1 mW/cm²
UV exposure time: 8 hours
Environmental conditions for UV exposure: Temperature at 25°C ± 1
RH ≥ 90%
UV lamp: Interlight F40 T10/BLB 130V 40W
UV light radiometer: Mannix UV340



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Test Results: Results of testing performed on sample **“B”** UV irradiation

| Sample | Bacteria | Inoculum cfu/ml | Test number | Percentage Reduction UV 0.25 mW/cm ² * | Percentage Reduction UV 1 mW/cm ² * | Percentage Reduction Dark* |
|------------|------------------|--------------------|-------------|---|--|-------------------------------|
| “B” | <i>E. coli</i> | 10 ⁶ | Test 1 | 96.4% | 100% | 93.4% |
| | | | Test 2 | 95.0% | 100% | 95.7% |
| | | | Test 3 | 95.9% | 100% | 95.9% |
| | <i>S. aureus</i> | 10 ⁶ | Test 1 | 100% | 100% | 96.7% |
| | | | Test 2 | 99.9% | 100% | 95.5% |
| | | | Test 3 | 100% | 100% | 97.2% |

* Reduction in bacteria calculated per the initial number of bacteria inoculated on the surface of the bacteria

Test Results: Results of testing performed on sample **“B3”** UV irradiation

| Sample | Bacteria | Inoculum cfu/ml | Test number | Percentage Reduction UV 0.25 mW/cm ² * | Percentage Reduction UV 1 mW/cm ² * | Percentage Reduction Dark* |
|-------------|------------------|--------------------|-------------|---|--|-------------------------------|
| “B3” | <i>E. coli</i> | 10 ⁶ | Test 1 | 90.8% | 100% | 92.8.4% |
| | <i>S. aureus</i> | 10 ⁶ | Test 1 | 99.1% | 100% | 94.9% |

* Reduction in bacteria calculated per the initial number of bacteria inoculated on the surface of the bacteria



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DISCLAIMER AND LIMITATION OF LIABILITY

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10/15/2020

Dr. Jyothi Rangineni
Research Scientist