

## Test Report N. 1127 /EL MI18

### Spett.le

IRIS CERAMICA GROUP

Sede operativa VIA GHIAROLA NUOVA, 119  
41042 FIORANO MODENESE (MO)

Modena 02/05/2018

<b>Receipt N.:</b> 1.127/EL MI	<b>Date of receipt :</b> 15/03/18	<b>Analysis start date:</b> 03/04/18	<b>Analysis end date:</b> 10/04/18
<b>Material:</b>	Ceramics materials		
<b>Product:</b>	Ceramic tile		
<b>Sample:</b>	CALACATTA SL ACTIVE 2.0 - 300 x 150cm - 6mm		
	Test information:		
	- the method PNN -100 is in conformity with ISO 27447:2009 excluding point 7.5: characteristics of light source		
	- treated specimens : 50 x 50 mm square, 6 mm thickness		
	- not-treated specimens : 50 x 50 mm square, 6 mm thickness		
	- all specimens are rinsed with distilled water and autoclaved at 121°C for 30 minutes before the test		
	- characteristics of lighth source : LED LAMP OOSL S02-C36095 - round plate 22V - 11W - 144 led 4000K - OSRAM		
	- radiometer DELTA OHM - model HD2102.2 - serial number : 10008472 - model probe: LP471 PHOT		
	- time exposure: 8h - irradiation intensity: 1000 LUX		
	- inoculated test bacteria suspension : 0.15 ul		
	- test bacteria : Escherichia coli ATCC 8739		
	- adhesive film : polypropylene film 40 x 40 mm square - transparency rate = 85% for visible range		
<b>Sampling:</b>	made by customer		
<b>Date of sampling:</b>	15/03/18		

Test	Method	UM	Result
Photocatalytic antibacterial activity - E. coli ATCC 8739*	PNN-100 2010 Rev.0 (Ref. ISO 27447:2009 excluding point 7.5 : characteristics of light source)		
<i>N. bacteria inoculated*</i>		cells/ml	<b>2.500.000</b>
<i>A - average number of bacteria non-treated specimens*</i>		cells/ml	<b>400.000</b>
<i>BL - average number of bacteria non-treated specimens after LED light irradiation*</i>		cells/ml	<b>2.600.000</b>
<i>CL - average number of bacteria photocatalytic treated specimens after LED light irradiation*</i>		cells/ml	<b>10</b>

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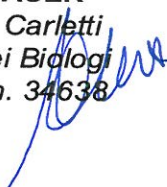
Test	Method	UM	Result
RL - photocatalytic antibacterial activity after LED light irradiation*		Log10	5,4
RL - photocatalytic antibacterial activity after LED light irradiation*		%	99,99
BD - Average number of bacteria non treated specimens after dark treatment*		cells/ml	1.100.000
CD - Average number of bacteria photocatalytic specimens after dark treatment*		cells/ml	10
Delta R - Difference between photocatalytic specimens after irradiation and dark treatment*		Log10	0,4

**NOTE :**

the test assesses the survival of bacteria type Escherichia coli ATCC 8739, on the surface of CALACATTA SL ACTIVE 2.0 300 x 150cm - 6mm subjected to LED light 1000 LUX radiation for 8h. Under test condition specified in the description sample, the bacterial reduction is equal to 99.99%.

**TECHNICAL MANAGER**

Dr.ssa Alessandra Carletti  
Ordine Nazionale dei Biologi  
Albo professionale n. 34638  
Sez.A



U: expanded uncertainty associated with single measurement (P = 95 % - K = 2) - LD: Detection limit (the lowest concentration of analyte detectable) - LQ : Limit of Quantification (the lowest concentration of analyte detected with acceptable precision and accuracy) - R% Recovery % . U - R% - LQ - LD are indicated if required by the Customer . PNN : internal method - [ ] Subcontracted test  
Reference standards for microbiological food : UNI EN ISO 7218:2013/Cor.1:2014 (counting in single dish and two consecutive dilutions )  
waters : ISO 8199:2005; (results expressed with < 4ufc/ml and < 40ufc / g indicate that microorganisms are present but less than the value expressed ; for values between 4-10 cfu / ml , 4-10 ufc/100ml , 40-100 cfu / g the number of microorganisms is estimated)  
Results of tests with the legal limits are evaluated taking into account the value of the uncertainty and the rules relating to rounding .  
Results of tests with the reference values defined by the Customer shall be assessed taking into account the value of the uncertainty only if requested by the Customer. Non-compliant results are given if requested by the Customer.  
This Test Report refers only to the sample tested; the name and description of the sample are declared by the Customer . This test report may only be reproduced in full; partial reproduction must be authorized with written approval by the Laboratory . If the test report is digitally signed , the integrity of the document can be confirmed by checking the validity of the digital signature within the file.  
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