



Test Report N. GF/1.2018 - ENG

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**Test: testing of degradation of NO<sub>x</sub> in air on Calacatta SL Active 2.0 - 6mm.**  
**Simulation in real conditions with LED lights.**

Milan 08/02/2018

Date of receipt	31/01/2018
Analysis start date	01/02/2018
Analysis end date	07/02/2018
Material	Ceramic Materials
Product	Ceramic slabs in porcelain gres
Sample	<b>Calacatta SL Active 2.0 - 6mm</b>
Test information	<ul style="list-style-type: none"><li>• Test of photodegradation of NO<sub>x</sub> in air.</li><li>• Tested sample: collected and cut in a 2x20 cm sample from an original slab, intact in all its parts, randomly chosen from a production batch.</li><li>• Pre-treatment methods: in accordance with ISO 22197-1, the sample was UV-A irradiated for 6 hours and then immersion in deionized water for 2 hours.</li><li>• Light source: flat lamp LED 4000K <b>Sample lighting: 1000 lux.</b></li><li>• Exposure time: 6 h.</li><li>• Initial concentration of NO<sub>x</sub>: 100 ± 10 ppb, equal to 190 µg/m<sup>3</sup>, in synthetic air (WHO considers NO<sub>2</sub> values under 40 µg/m<sup>3</sup> as pure air).</li><li>• Type of reactor: for research purposes. Results published in international scientific journals <sup>1,2,3,4</sup>.</li></ul>

<sup>1</sup> J. Phys. Chem. C 111 (2007) 13222

<sup>2</sup> Nanoscale Research Letters 4 (2009) p.97

<sup>3</sup> Cement and Concrete Composites, 36 (2013) 116-120

<sup>4</sup> Chemical Eng J, 261, (2015) 76-82



	<ul style="list-style-type: none"><li>• Analytical method: chemiluminescence (SERINUS 40).</li><li>• Reproducibility: the measurement was repeated on no. 5 samples, cut and randomly chosen from # 5 different slabs.</li></ul>
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### Results and conclusions

Test were performed in laboratory simulating real conditions in confined environments, and considering a strong pollution equal to  $190 \mu\text{g}/\text{m}^3$  of nitric oxides and a LED lighting equal 1000 lux.

In these conditions, the slab of porcelain grès **Calacatta SL Active 2.0 - 6mm** is **active in the photocatalytic degradation of NOx in air under LED lighting**. In reference to the experimental data obtained after 6 hours of testing, the percentage of degradation of NOx is equal to **47%**.

The Scientific Director

Prof. Claudia Letizia Bianchi