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Final Report: Antiviral activity of UV irradiated “Calacatta Active Surface” samples

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AIM

The aim of this study was to verify the antiviral activity of low porosity surfaces provided by IRIS CERAMICA GROUP (Product Name: Calacatta Active Surfaces SL 300x150, 6 mm), after 4 hours of UV irradiation, at 0.1 mW/cm^2.
Briefly, SARS-CoV-2, responsible for COVID-19, was added to the samples and the residual infectivity of the virus was assessed by Plaque Assay method.

RESULTS

The antiviral activity of "Calacatta Active Surfaces SL 300x150, 6 mm" samples was evaluated against SARS-CoV-2, responsible for COVID-19.
The results of antiviral tests are summarized below.

Table 1: Results of the antiSARS-CoV-2 test on Calacatta Active Surfaces samples after 4 hours of UV exposure, at 0.1 mW/cm^2.

N* (PFU/cm2) T=0 U0	N* (PFU/cm2) Log N T=4 hours **Glass** **Ut**	N* (PFU/cm2) Log N T=4 hours **Active Surface** **At**	**Antiviral activity** **Ut-At**	**%** **Viral reduction**
84401 (14797) Log=4.926	4987 (2011) Log=3.673	283 (48) Log=2.448	**1.225**	**94.04 %**

*N is the infectivity titer of virus recovered per cm2 of test specimen. Data are expressed as mean and standard deviation, in brackets

Table 2: Results of the antiSARS-CoV-2 test on Calacatta Active Surfaces samples after 4 hours of dark conditions

N* (PFU/cm2) T=0 U0	N* (PFU/cm2) Log N T=4 hours **Glass** **Ut**	N* (PFU/cm2) Log N T=4 hours **Active Surface** **At**	**Antiviral activity** **Ut-At**	**%** **Viral reduction**
84401 (14797) Log=4.926	27727 (14047) Log=4.394	8963 (5971) Log=3.784	**0.611**	**75.48 %**

*N is the infectivity titer of virus recovered per cm2 of test specimen. Data are expressed as mean and standard deviation, in brackets

Table 3: Results of cytotoxicity and cells sensitivity to SARS-CoV-2

	Cytotoxicity	**Sensitivity to SARS-CoV-2**		
	MTT method	S (Log PFU/ml)	Validation criteria	Results
Negative control	1.151 (0.151)*	2.618		
No Active	1.293 (0.075)	2.461	$\lvert Sn\text{-}Su \rvert \leq 0.5$	0.157 (≤ 0.5, pass)
Active Surface	1.209 (0.074)	2.441	$\lvert Sn\text{-}St \rvert \leq 0.5$	0.177 (≤ 0.5, pass)

*OD values from MTT assay. Data are the mean and standard deviation from three replicates.

CONCLUSIONS

Under the used experimental conditions, the test "Calacatta Active Surfaces" samples showed antiviral effect against SARS-CoV-2, after 4 hours of contact time and UV irradiation, at 0.1 mW/cm^2.

Specifically, the test "Calacatta Active Surfaces" samples induced 94.04 % of viral reduction.