

Report: test of puriZAP® for LED Viruskill and LED iBond**Purpose:**

To test of the effect of the product puriZAP® against SARS-CoV-2 infectivity.

Participants:

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Time of execution: February 2021, report finalized ultimo February 2021.

Task description:

Measurements of the effect of UV-C LED irradiation against SARS-CoV-2 is performed according to the table below for puriZAP®. Each “x” indicates triple determination. Each triplicate consists of single measurements at three different locations (positions 1, 2 and 3) under the puriZAP®.

Distance\exposure time	1 second	2 seconds	5 seconds	10 seconds
12 mm	X	X	X	
50 mm			X	X
100 mm			X	X

The work was performed over three test days:

Day one: Cultivation of Vero E6 cells.

Day two: Preparation of experiments, irradiation of viral suspensions, infection of Vero E6 cells and establishment of plaque assay.

Day five: Development of plaque assay, data collection.

For each measurement 400µl viral suspension is transferred to a microtiter well and treated with the puriZAP®. 300ul is transferred to and grown without dilution in a plaque assay. The number of infectious virions is estimated based on plaque count up to approx. 50 plaques.

Results for puriZAP®:

Reference SARS-CoV-2 suspension	
	Virions/300µL
Untreated stock used for 1, 2 and 10 seconds measurements	3.200
Untreated stock used for 5 seconds measurements	1.133

Measured values at each position along the length of the instrument, at the indicated distance/exposure time:

	Position 1 8 cm left from position 2	Position 2 center	Position 3 8 cm right from position 2
1 second, 12 mm	53	30	10
2 seconds, 12 mm	19	10	0
5 seconds, 12 mm	1	1	0
5 seconds, 50 mm	2	0	0
5 seconds, 100 mm	3	4	4
10 seconds, 50 mm	0	0	0
10 seconds, 100 mm	0	0	0

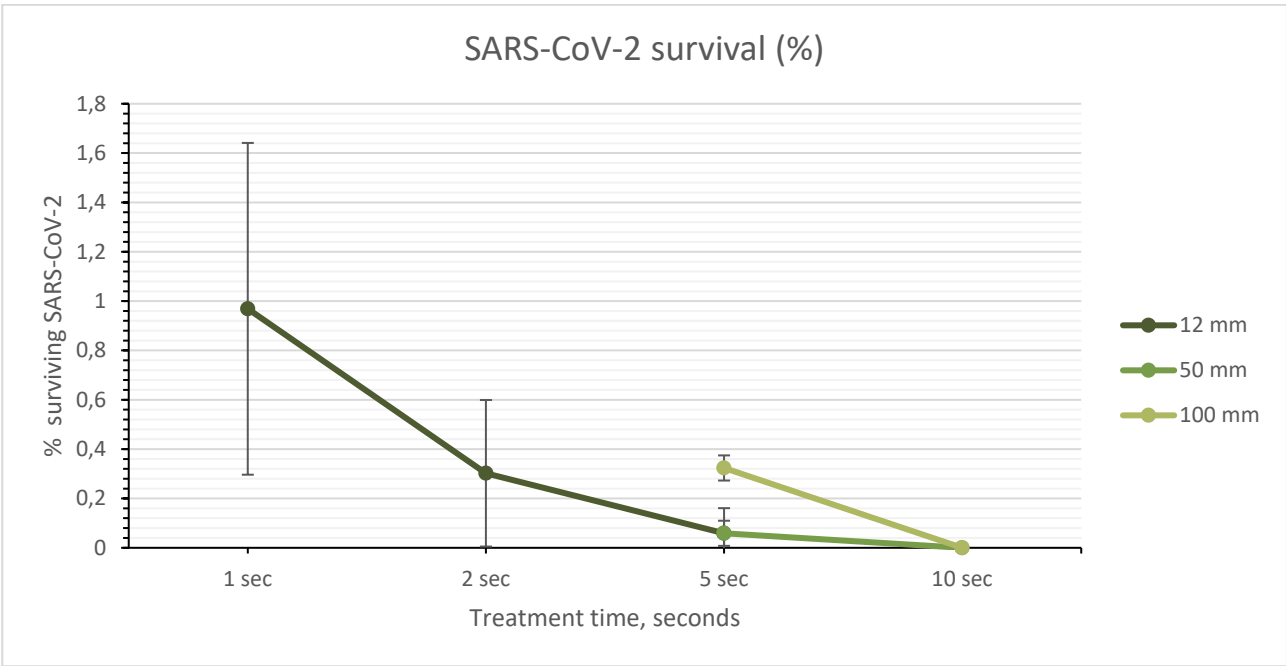
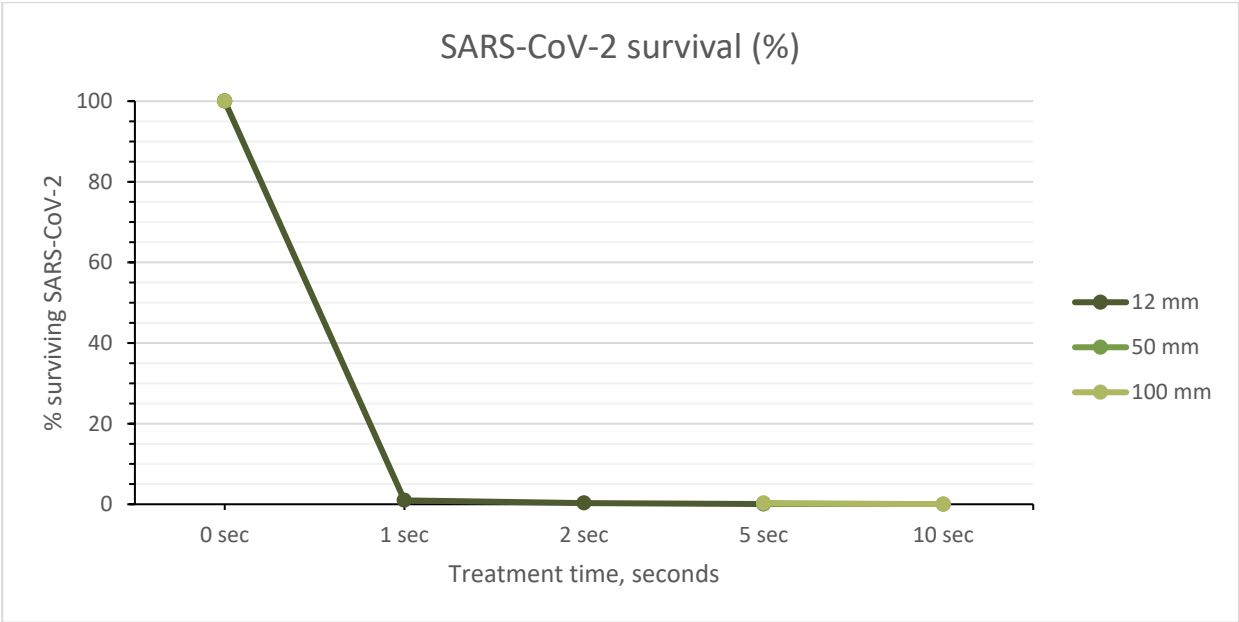
Average of surviving virions at each distance / exposure time relative to start-concentration:

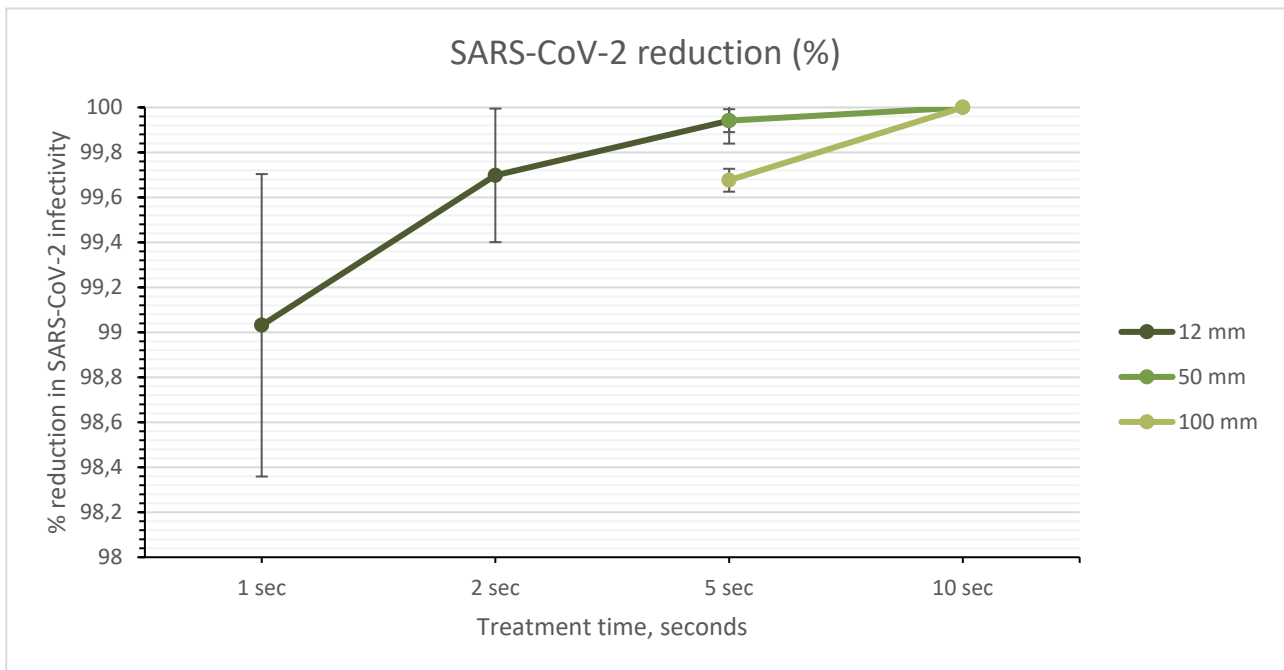
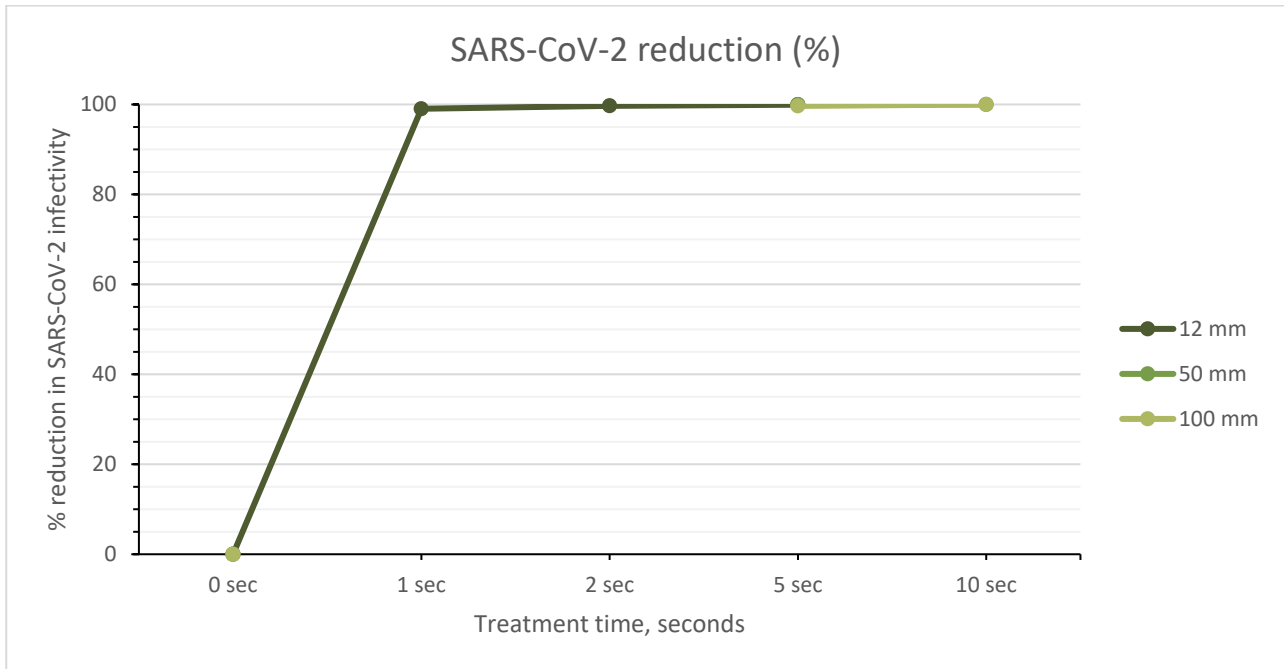
Mean SARS-CoV-2 survival per 300µL				
Distance\exposure time	1 second	2 seconds	5 seconds	10 seconds
12 mm	31/3,200	9.7/3,200	0.7/1,133	
50 mm			0.7/1,133	0/3,200
100 mm			3.7/1,133	0/3,200

Mean SARS-CoV-2 reduction in percentage				
Distance\exposure time	1 second	2 seconds	5 seconds	10 seconds
12 mm	99.03%	99.70%	99.94%	
50 mm			99.94%	>99.97%
100 mm			99.68%	>99.97%

Conclusion: Treatment with the puriZAP® for 1-5 seconds (distance 12-100mm) inactivates 99.03-99.94% of the virions. After treatment for 10 seconds at 100mm no viable virions could be detected (i.e. >99.97% reduction).

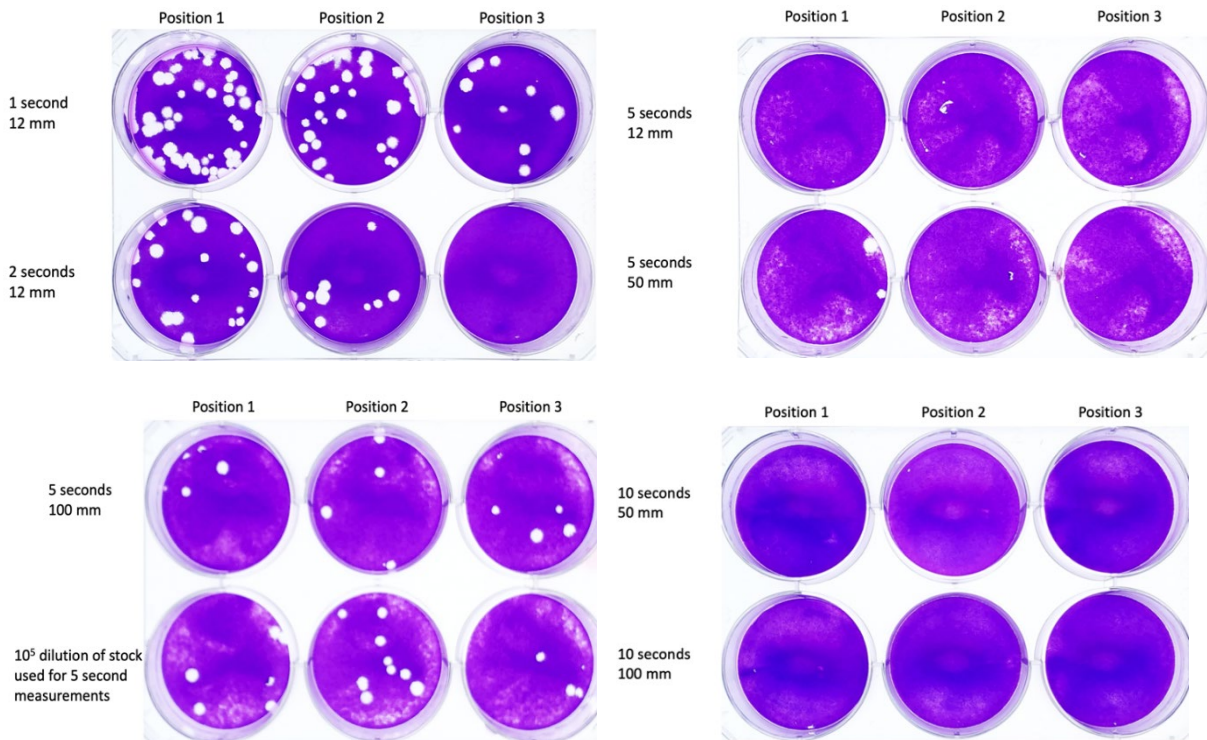
Graphical representation of data:






In the graphs, no viable virions detected is depicted as 0% surviving virions or 100% reduction.

Plaque assay results:



This report is a result of a commissioned research project where SDU has received payment on market terms to perform certain specified services for LED Viruskill. The agreement entered into between the parties is subject to the Danish University Act (universitetsloven) § 20 (3).


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