Efficacy of indoor air decontamination using Medklinn Pro AS2 Air & Surface Sterilizer (with Cerafusion™ Sterilization Technology) in terms of germ* reduction in aerosols

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Test Conducted by:
HygCen Germany GmbH
Schwerin, Germany

Test Report by:
Dr. Med. Univ. S. Werner
Medical Specialist for Hygiene and Environmental Medicine
HygCen Germany GmbH
Schwerin, Germany

Test Method:

The test room with a volume of 75m3 was preconditioned with Medklinn PRO AS2 Air+Surface Sterilizer, using level 3 setting of the device over 10min. This was enough to reach an O3 concentration of 0.04ppm (Medklinn Test #1) and 0.07ppm (Medklinn Test #2) in the test room. Before nebulizing the virus aerosols in the test room, the ozone concentration was measured at 0.04ppm (Test#1) and 0.07ppm (Test#2) using a Dräger x-act 5000 measurement device.

Subsequently, the virus using bacteriophage (Coliphage phi X174 – a Microviridae, single-stranded DNA, 27 nanometer capsid diameter, unsheathed) was nebulized with a precision ultrasonic nebulizer type Typhoon fogger. 70ml of virus suspension was applied to the room within 5min. The efficacy was tested against bacteriophages (as a surrogate for viral efficacy).

For Coliphage phiX174, the virus concentration in the virus solution to be nebulized was determined to be 6.87lg/ml. In the reference experiment, in which the Medklinn PRO AS2 Air+Surface Sterilizer was not in used, Coliphage phiX174 was reisolated from the air at a concentration of 6.48lg/m3.

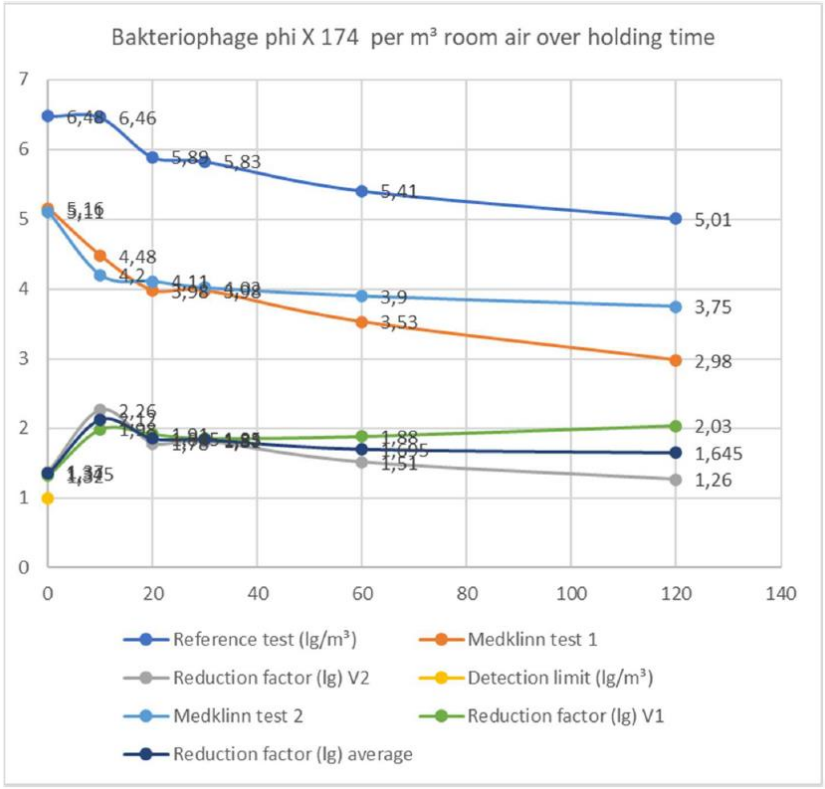
For the purpose of efficacy testing, air samples of the room air were passed through the impingers at an air flow rate of 125l per 10min for a sampling period of 10min. The liquid contained in the impingers was then quantitatively analyzed for the presence of the test virus. After completion of the nebulization of the virus aerosol, sampling was performed immediately afterwards (T0), after 10min, 20min, 30min,

60min and 120min. The Medklinn PRO AS2 Air+Surface Sterilizer was in operation during the measurement time of 120min.

Compared to the control measurement, the following reduction rates could be determined for the individual points against time after completing the germination process during the operation of the Medklinn PRO AS2 Air+Surface Sterilizer (in a room preconditioned with the process for 10min).

Test Results:

Content of phiX174 in room air							
	test 210510	test 210512		test 210630			
Time (min)	Reference test (lg/m³)	Medklinn test 1	Reduction factor (lg) V1	Medklinn test 2	Reduction factor (lg) V2	Reduction factor (lg) average	Detection limit (lg/m³)
0	6,48	5,16	1,32	5,11	1,37	1,345	2,2
10	6,46	4,48	1,98	4,2	2,26	2,12	2,2
20	5,89	3,98	1,91	4,11	1,78	1,845	2,2
30	5,83	3,98	1,85	4,02	1,81	1,83	2,2
60	5,41	3,53	1,88	3,9	1,51	1,695	2,2
120	5,01	2,98	2,03	3,75	1,26	1,645	2,2



After 10min the maximum reduction factor was measured as a 2.12lg reduction (99% reduction) compared to the reference test, when the Medklinn PRO AS2 Air+Surface

Sterilizer (with Cerafusion™ Sterilization Technology) was in operation. Over the duration of measurement time of the test, the reduction factor remained in the range averaging 2lg.

The present results, with respect to phiX174, also suggest a comparable efficacy of the method against other viruses (at least enveloped viruses, incl. all types of coronaviruses and influenza viruses).

Note:

** The term "**germ**" refers to microscopic bacteria, viruses, fungi, and protozoa that can cause disease.*

About HygCen

HygCen Germany GmbH is an independent research institute certified by the German Accreditation Body (DAkkS) with EN ISO/ IEC 17025 accreditation for disinfectants and medical devices.