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Test Report

Report No.: 2002073 / 12507-3 **Date:** 2021-03-23

Client: OZONOS GmbH
Ginzkeyplatz 11
5020 Salzburg

Subject: OZONOS AC-1 air purifier

Task: Disinfection efficacy against viruses (bacteriophages)

Order: Order of 2020-08-19

Date of sampling: —

Location of sampling: No samples taken by OFI staff
Samples provided by the client

Receipt of samples: 2020-11-13

1 SCOPE OF WORK

According to the order, an OZONOS AC-1 air purifier was tested for its disinfection efficacy against viruses (bacteriophages). An Escherichia phage MS2 solution was used as the test suspension.

2 SCOPE OF APPLICATION

The results given in this Test Report have been obtained under the specific conditions of the individual tests. As a rule they are not the only criteria for assessing the product in question and its suitability for a specific purpose of application.

Test Report has originally been drawn up in German. The German version shall be the authentic one and prevail over the English one for all matters of interpretation and construction. The English version shall only be deemed a translation for information purposes.

3 SAMPLE MATERIAL

Our client submitted the following samples for the purpose of testing:

- Sample: OZONOS AC-1 air purifier

Other documents submitted by our client:



Figure 1: OZONOS AC-1 air purifier

4 TESTS

The investigations in question were carried out from 2021-02-22 bis 2021-02-26.

The tests were carried out in the individual technical departments within the scope of competence of the authorised signatories according to the OFI QM manual.

4.1 Experimental setup

The test was performed with the OZONOS AC-1 air purifier with a volume flow of 55 m³/h (according to the manufacturer's specifications). The test was performed with two different lamp intensities 25% and 10%. An Escherichia phage MS2 solution with a defined concentration was sprayed as bioaerosol using a liquid aerosol generator (ATM 220, Topas). The fan of an air filtration test rig (TOPAS AFC132, Topas) was attached to the air outlet on the side of the air purifier device via a funnel. This serves to collect the viruses capable of reproduction and to prevent the contamination of the room. Behind the tested air purifier an absolute filter was placed in line with the outflowing air from the device passing through the absolute filter to collect all remaining viable virus particles.

Three measurements were performed with and without UV-lamp and the phage concentration was analyzed using the absolute filter. The phage concentration was determined with counting of PFU (plaque forming unit) using the double agar layer method after 24 h of incubation at 37 ± 1°C. The disinfection efficacy of viruses is calculated according to the following formula:

$$\text{Disinfection efficacy of viruses [\%]} = \left(1 - \frac{\text{pfu with UV - lamp}}{\text{pfu without UV - lamp}} \right) * 100$$

The measurement parameters used are described in Table 1.

Table 1: test parameters used

Test aerosol	Escherichia phage MS2 ATCC 15597-B1
Host cell	<i>Escherichia coli</i> ATCC 700891
Inlet pressure of aerosol generator [bar]	3,8

5 RESULTS

5.1 Results of the disinfection efficacy

The inactivation rate of viruses of the air purifier is given as the disinfection efficiency [%], the higher this is the more viruses are inactivated by the air purifier. The results of the individual samples are shown in Table 2 below.

Table 2: Disinfection efficacy against viruses [%] for the air purifier according to microbiological analysis

sample	No.	Pfu raw gas [pfu]	Pfu clean gas [pfu]	Disinfection efficacy against viruses [%]	
				Single measurement	Average ± Standard deviation
25% Lamp intensity	1	1.65*10 ⁷	3.35*10 ⁵	97.97	98.5 ± 0.6
	2	3.70*10 ⁷	3.15*10 ⁵	99.15	
	3	3.35*10 ⁷	5.70*10 ⁵	98.30	
10% Lamp intensity	1	1.65*10 ⁷	3.00*10 ⁵	98.18	95.5 ± 4.9
	2	3.70*10 ⁷	5.50*10 ⁵	98.51	
	3	3.35*10 ⁷	3.40*10 ⁶	89.85	

This Test Report No. **2002073 / 12507-3** comprises
5 sheets with 2 table(s), 1 figure(s) and 0 appendix(es).

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