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A NAH által NAH-1-1880/2020 számon akkreditált laboratórium

Summary of test

Customer name	SolvElectric Technologies Kft.
Customer address	6728 Szeged, Budapesti út.8.
Aim of test	Testing the effectiveness of the SolveAir UNI device with test microorganisms
Equipment details	SolveAir UNI photocatalytic air disinfectant, 8 active lamellas, UV-A illumination SN: 055121070347
Delivery time	2021. 06. 17.
Start of test	2021. 06. 21.
End of test	2021. 07. 09.
Number of test report(s)	2021/ÉL02582 - 2021/ÉL02594

1. Test conditions

Test microorganisms: *Escherichia coli* ATCC 8739

Incubation temperature: 30 ± 1°C

Media used: Plate – Count agar

Exposure time (minute): 30 60 120

Ambient temperature: 21 – 22°C

2. Methods

After rehydration, the lyophilized microorganisms were suspended in 50 mL sterile diluent. Test sample aliquots were weighed from this stock suspension and baseline reference quenches were performed.

Test report number: 2021 / ÉL02582

For control samples, test specimens were measured on inactive surfaces (sterile petri dishes) and no illumination was used. Surfaces were swabbed after 30, 60 and 120 minutes.

Number of test report (s): 2021 / ÉL02583-2021 / ÉL02585

The effectiveness of the SolveAir UNI device was tested on the active surface lamellae in the device. On the lamellae, 100 µl of the bacterial suspension was spread on 5x5 cm surfaces. With this, we modeled the bacteria in the microscopic liquid droplets in the air, which are placed on the surface by sucking air through the device.

1. Test condition: in triplicate on a 5x5 cm photoreactive surface with UV-A illumination. After an exposure time of 30 minutes, the surface was swabbed and cultured.

Number of test report (s): 2021 / ÉL02586-2021 / ÉL02588

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2. Test condition: in triplicate on a 5x5 cm photoreactive surface with UV-A illumination. After an exposure time of 60 minutes, the surface was swabbed and cultured.

Number of test report (s): 2021 / ÉL02589-2021 / ÉL02591

3. Test condition: in triplicate on a 5x5 cm photoreactive surface with UV-A illumination. After an exposure time of 120 minutes, the surface was swabbed and cultured.

Number of test report (s): 2021 / ÉL02592-2021 / ÉL02594

3. Results

	Colony count (CFU) after exposure time (min)			Stock suspension
	30	60	120	
I.	**6,0x10E3**	**1,1x10**	**2**	**1,0x10E5**
II.	**4,9x10E3**	**6**	**2**	
III.	**4,0x10E3**	**4**	**0**	
Average (CFU)	**4,9x10E3**	**7**	**1,3**	
Control (CFU)	**9,4x10E4**	**8,5x10E4**	**9,0x10E4**	
Degradation efficiency (%)	**95,10**	**99,99**	**99,99**	

Table 1: Change in the number of Escherichia coli according to the treatment time

4. Evaluation

The antibacterial effect under UV-A illumination reaches 95.10% even after 30 minutes and 99.99% after 60 minutes.
Based on the 1x105 CFU bacterial count per 5x5 cm (0.0025m2) surface, the entire 8 active 0.026m2 surfaces allow 8x106 CFU bacterial counts to be inactivated.
The air flow speed in the device: 1.0-1.3 m/s; the volume flow is 60 m3/h, therefore it can inactivate the assumed bacterial number of 1.33x105 CFU/m3 in 60 m3 of air within 1 hour.
In summary, it can be concluded that the bacteria that are present in the microscopic liquid droplets on the lamellae are inactivated with adequate efficiency by the illuminated active surface.

Budapest, 2021.07.14.

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Head of Laboratory