

Test Report

Report No.: SHA01-22070446-JC-01En

Sample Name: MESP Air Sterilizing Purifier

Applicant: AirQuality Technology (Shanghai) Co., Ltd.

Sample source: Applicant Sample Delivery

Shanghai WEIPU Testing Technology Group Co., LTD.



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2022.08.01
检验合格
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Sample Name	MESP Air Sterilizing Purifier	Sample Quantity	1
Date/ Batch No.	/	Sample Description	/
Model	FFC	Brand	AirQuality, MESP
Applicant	AirQuality Technology (Shanghai) Co., Ltd.	Sample Received Date	2022-07-13
Manufacturer	AirQuality Technology (Shanghai) Co., Ltd.	Test Period	2022-07-13 ~ 2022-08-01
Address of Applicant	No. 1199, Yixian Road, Baoshan Shanghai	Sample No.	2207000971-1

Test Method

Air Disinfection Effect Verification and Micro-Electrostatic Filter Client supply method
Bacterial Residue Detection

Evaluation basis

Air Disinfection Effect Verification and Micro-Electrostatic Filter /
Bacterial Residue Detection

Test Result(s)

In 20m³ confined space, under the conditions of temperature 20 ~ 25°C, humidity 50~ 70%RH, after the sample was used for 2 hours, the killing rate of Staphylococcus albicans was >99.99% in three tests, and the bacterial residual rate on the micro-electrostatic filter was 0.16%.

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Complied by:

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Approved by:

Jian Wang

Issued Date:

2022-09-06

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Sample Name	MESP Air Sterilizing Purifier	Sample Received Date	2022-07-13
Test Items	Air Disinfection Effect Verification and Micro-Electrostatic Filter Bacterial Residue Detection	Test Period	2022-07-20 ~ 2022-08-01

I. Equipment

1. Sample information: MESP Air Sterilizing Purifier as subject matter
2. Test strain: Staphylococcus albicans (8032), purchased from China Industrial Microbial Culture Management Center, cultured to the third generation
3. Medium: Nutrient broth medium, Nutrient AGAR medium
4. Air mist chamber: 20m³
5. Equipment: Electric heating constant temperature incubator LRH-250F (WPE-RH0346), Biological safety cabinet BSC-1604IIA2 (WPE-RH0307), Six level sieve air impact sampler LB-KHW-6 (WPE-RH0091, WPE-RH0092), Microbial aerosol generator LB-3300 (WPE-RH0110, WPE-RH0111)

II. Method

1. Test Basis: Client supply method
2. Sample preparation
 - 2.1 Place the three-layer filter (membrane) of the sample in a sterile bag and soak it in 75% alcohol for 30min
 - 2.2 Place the soaked filter and metal frame in a biological safety cabinet to dry naturally overnight, ensuring that the micro-electrostatic filter is completely dry
 - 2.3 Assemble the sterilized filter and metal outer frame in a biological safety cabinet, transport it to the air chamber with a sterile bag, and assemble the sterilizer according to the sample instructions
3. Test Environment: The experimental group: Temperature: 22.8℃, Humidity: 54.1%RH; The control group: Temperature: 22.9℃, Humidity: 54.7%RH
4. Infection: Take the test bacteria suspension and dilute it with nutrient broth medium to the required concentration. The equipment will be put into the aerosol chamber at once. The door will be closed. Spray and dye the bacteria. Stir with the fan. The bacteria will be 5 min. After the spray is finished, the fan will continue to stir 5min and then remain 5 min
5. Sampling :At the same time, the aerosol chamber of the control group and the experimental group were sampled before disinfection with a six stage sieve air impact sampler
6. Disinfection: The experimental group was disinfected in the aerosol chamber for 2h, and the control group was treated in the aerosol chamber at the same time (without disinfectant). After treatment for 2h, samples were taken in the aerosol chamber of the experimental group and the control group according to the above method

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7. After sampling, the sampling plate was directly placed in the incubator at 36℃ for 48h. The results were observed and the number of colonies was counted
8. Negative control sample collection: The same batch of unused medium, sampling solution and PBS were cultured at the same time with the test sample, and the results were observed
9. The experiment was repeated three times, and the killing rate was calculated each time
10. After the test is completed, cover the sterilizer with a sterile bag, turn on the UV lamp in the air chamber for sterilization for 30 minutes, and ventilate for 15 minutes
11. Transport the metal frame of the sterilizer as a whole to the biological safety cabinet, take out the micro-electrostatic filter of the sterilizer in a sterile environment, and use 1L of sterile saline to elute the bacteria remaining on the micro-electrostatic filter
12. Take 3 mL of the eluent and add it to 3 sterile plates, each plate is 1 mL of the eluent, and then take 1 mL for 10-fold dilution, take 1 mL of each to inoculate 3 plates, and pour the TSA medium at about 50 ℃ into the plates. Incubate at 36.0±2℃ for 48h

III. Results

1. Under the test temperature of 20 ~ 25 ℃ and humidity of 50 ~ 70% RH, the results of killing rate of Artificially Polluted Staphylococcus albus in the air of 20m³ closed room after the disinfection of the test object for 2h are shown in Table 1:

Table 1 Killing rate of Staphylococcus albus

Disinfection time (h)	NO.	The control group		The experimental group	
		Air bacterial content (cfu/m ³)	Natural extinction rate (%)	Air bacterial content (cfu/m ³)	Killing rate(%)
0	1	1.5×10 ⁵	/	1.2×10 ⁵	/
	2	1.4×10 ⁵	/	1.0×10 ⁵	/
	3	1.2×10 ⁵	/	1.1×10 ⁵	/
2	1	1.1×10 ⁵	25.68	0.0	>99.99
	2	1.0×10 ⁵	26.72	0.0	>99.99
	3	9.5×10 ⁴	23.50	0.0	>99.99

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2. The bacterial residual rate on the micro-electrostatic filter is shown in Table 2:

Table 2 Bacterial Residue Rate on Micro Electrostatic Filters

NO.	Air bacterial content		Eluate bacterial content		Residual rate (%)
	Viable count (cfu/sample)	Average (cfu/sample)	Viable count (cfu/sample)	Average (cfu/sample)	
1	2.4×10^6	2.2×10^6	4.0×10^3	3.7×10^3	0.16
2	2.0×10^6		3.0×10^3		
3	2.2×10^6		4.0×10^3		

Note: Air bacteria content (cfu/sample) = air bacteria content of experimental group (cfu/m³) × 20m³/sample

IV.Conclusions

In 20m³ confined space, under the conditions of temperature 20 ~ 25℃, humidity 50~ 70%RH, after the sample was used for 2 hours, the killing rate of Staphylococcus albicans was >99.99% in three tests, and the bacterial residual rate on the micro-electrostatic filter was 0.16%.

Sample photo



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