Test Report Number: GZHH00357688

Applicant: Nuwave,LLC
1795 N. Butterfield RoadLibertyville, IL 60048 USA

Date: May 13, 2020

Sample Description:

One (1) of submitted sample said to be :

Item Name	:	**Air purifier.**
Trade Mark	:	Nuwave OXYPURE.
Sample Specification	:	120V/60Hz/128W.
Item Quantity	:	2PCS.
Model Number	:	470XX ("XX" may be any Numbers, represent different colors or filter accessories).
Manufacturer	:	Guangdong Jiangxin Technology Co.,Ltd. Dahangtou of 6, Daliang damen shaweiteam, Shunde, Foshan, Guangdong, China.
Goods Export To	:	USA.
Date Sample Received	:	Mar 30, 2020

****

Tests conducted:

As requested by the applicant, refer to attached page(s) for details.

****

Intertek GM Testing Service Zhuhai Co. Ltd.

Sarah Xu
Asst. Manager
Healthcare and Beauty Products

Intertek GM Testing Service Zhuhai Co. Ltd.
珠海天祥粤澳质量技术服务有限公司

6/F, R&D and Testing/B, Guangdong-Macau TCM Park commercial Service center, 2522 Huan Dao Bei Road, Hengqin New Area, Zhuhai, China
中国珠海市横琴新区环岛北路 2522 号粤澳合作中医药科技产业园研发检测大楼 6 楼

Tel:+86756 2167557
www.intertek.com.cn
www.intertek.com

Test Report Number: GZHH00357688

Tests Conducted

1 Eliminating Bacterial Rate Test #

Test Method for Air Purifier Disinfection Performance：

1. Test Equipment
1) Strain: *Staphylococcus albus*, *Staphylococcus aureus*, *Escherichia coli*
2) Microbial aerosol generator: TK-3
3) Culture media: NA
4) Sampling equipment: six-stage sieve sampler
2. Test Conditions
1) The volume of the test chamber: 30 m^3
2) Environment temperature: (20~25) ℃
3) Environment humidity: (50~70) %RH
3. Operation Conditions of the Air Purifier
Set the switch to position “The highest gear”.
4. Test Procedure
1) Get a bacteria slant culture (4~5 generation) which is incubated at 37 ℃ for 24 h, wash the culture from this slant with 10 mL NB, filter the liquid culture by aseptic cotton buds, and dilute this inoculums with NB as appropriate.
2) The equipments are placed in the test chambers, close the door, and turn on the HEPA filter system. Simultaneously operate the environmental control devices until the temperature reaches (20~25)℃, relative humidity reaches (50~70)%. Turn off the chamber environmental control system.
3) Release microbial aerosol: turn on the microbial aerosol generator, then turn on the ceiling fan, turn off the fan after 10 min, and let stand for 15 min.
4) Original bacteria aerosols collected by six-stage sieve sampler.
5) The air purifier are adjusted to the highest air cleaning mode setting for test (test group). Bacteria aerosols (control group and test group) are collected at 120 min .
6) Choose 2 NA plates (the same batch) as the negative control, and culture them on the same condition with the samples.
7) Run the test three times and take the mean as the final result.
5. Computational Formula
Natural decay rate

$$N_t(\%) = \frac{V_0 - V_t}{V_0} \times 100$$

****

Intertek GM Testing Service Zhuhai Co. Ltd.
珠海天祥粤澳质量技术服务有限公司
6/F, R&D and Testing/B, Guangdong-Macau TCM Park commercial Service center, 2522 Huan Dao Bei Road, Hengqin New Area, Zhuhai, China
中国珠海市横琴新区环岛北路 2522 号粤澳合作中医药科技产业园研发检测大楼 6 楼
Tel:+86756 2167557
www.intertek.com.cn
www.intertek.com

Test Report Number: GZHH00357688

Tests Conducted

Where: V_0 = original bacteria count of control group; V_t = bacteria count after treatment of control group.

Eliminating Bacterial Rate

$$K_t(\%) = \frac{V_1 \times (1 - N_t) - V_2}{V_1 \times (1 - N_t)} \times 100$$

Where: V_1= original bacteria count of test group; V_2 = bacteria count after treatment of test group.

Test results

Test Bacteria	Test Time (min)	Test Number	Control Group		Test Group			Eliminating Bacterial Rate K_t (%)
			Original Bacteria Count V_0 (cfu/m^3)	Bacteria Count after Treatment V_t (cfu/m^3)	Natural Decay Rate N_t (%)	Original Bacteria Count V_1 (cfu/m^3)	Bacteria Count after Treatment V_2 (cfu/m^3)	
Staphylococcus albus	120	1	1.40×10^5	7.61×10^4	45.64	1.38×10^5	7	99.99
		2	1.35×10^5	7.04×10^4	47.85	1.29×10^5	7	99.99
		3	1.45×10^5	7.70×10^4	46.90	1.47×10^5	7	99.99
		Mean						99.99
Staphylococcus aureus	120	1	1.24×10^5	6.55×10^4	47.18	1.19×10^5	7	99.99
		2	1.19×10^5	6.59×10^4	44.62	1.11×10^5	7	99.99
		3	1.28×10^5	6.70×10^4	47.66	1.27×10^5	7	99.99
		Mean						99.99
Escherichia coli	120	1	1.25×10^5	5.30×10^4	57.60	1.32×10^5	7	99.99
		2	1.20×10^5	4.85×10^4	59.58	1.23×10^5	7	99.99
		3	1.13×10^5	4.96×10^4	56.11	1.37×10^5	7	99.99
		Mean						99.99

Note: The negative control group was sterile growth

****

Intertek GM Testing Service Zhuhai Co. Ltd.
珠海天祥粤澳质量技术服务有限公司

6/F, R&D and Testing/B, Guangdong-Macau TCM Park commercial Service center, 2522 Huan Dao Bei Road, Hengqin New Area, Zhuhai, China
中国珠海市横琴新区环岛北路 2522 号粤澳合作中医药科技产业园研发检测大楼 6 楼

Tel:+86756 2167557
www.intertek.com.cn
www.intertek.com

Test Report Number: GZHH00357688

Tests Conducted

Air Disinfection Test Method:

1. Test Equipment
1) Strain: *Aspergillus niger*
2) Microbial aerosol generator: TK-3
3) Culture media: PDA
4) Sampling equipment: six-stage sieve sampler
2. Test Conditions
1) The volume of the test chamber: 30 m^3
2) Environment temperature: (20~25) ℃
3) Environment humidity: (50~70) %RH
3. Operational Conditions of the Machine
Set the switch to position “The highest gear”.
4. Test Procedure
1) To the 4th to 5th generation of *Aspergillus niger* roxell culture, add 5.0 ml to 10.0 ml of 0.05% (v / v) Tween 80 aqueous PBS solution, scrap the *Aspergillus niger* conidia in solution and transfer the spore suspension with glass beads in the flask, lightly shaking 1 min and filter removed hypha. Centrifuge 20min in the range of 5000r / min ~ 6000r / min . Then observe under the microscope (400 times) , if there are still hypha in the suspension, to be centrifuged. Diluted with physiological saline solution to the appropriate concentration before use.
2) The equipments are placed in the test chambers respectively, close the door, and open the HEPA filter. Simultaneously operate the environmental control devices until the experimental cabin temperature to be (20~25) ℃, relative humidity to be (50~70) %, Turn off the chamber environmental control system.
3) Release microbial aerosol: turn on the microbial aerosol generator, then turn on the ceiling fan, turn off the fan after 5 min, and let stand for 5 min.
4) Original Bacteria aerosols collected by six-stage sieve sampler.
5) The Air purifier are adjusted to the highest air cleaning mode setting for test (test group), Bacteria aerosols (control group and test group) are collected at 120 min respectively.
6) Choose 2 PDA plates (the same batch) as the negative control, and culture them on the same condition with the samples.
7) Run the test three times and take the mean as the final result.
5. Computational Formula
Natural decay rate

$$N_t(\%) = \frac{V_0 - V_t}{V_0} \times 100$$

****

Intertek GM Testing Service Zhuhai Co. Ltd.
珠海天祥粤澳质量技术服务有限公司
6/F, R&D and Testing/B, Guangdong-Macau TCM Park commercial Service center, 2522 Huan Dao Bei Road, Hengqin New Area, Zhuhai, China
中国珠海市横琴新区环岛北路 2522 号粤澳合作中医药科技产业园研发检测大楼 6 楼
Tel:+86756 2167557
www.intertek.com.cn
www.intertek.com

Test Report Number: GZHH00357688

Tests Conducted

Where: V_0 = original bacteria count of control group; V_t = bacteria count after treatment of control group.

Eliminating Bacterial Rate

$$K_t(\%) = \frac{V_1 \times (1 - N_t) - V_2}{V_1 \times (1 - N_t)} \times 100$$

Where: V_1= original bacteria count of test group; V_2= bacteria count after treatment of test group.

Test results

Test Strain	Test Time (min)	Test Number	Control Group		Test Group			Eliminating Bacterial Rate K_t (%)
			Original Bacteria Count V_0 (cfu/m^3)	Bacteria Count after Treatment V_t (cfu/m^3)	Natural Decay Rate N_t (%)	Original Bacteria Count V_1 (cfu/m^3)	Bacteria Count after Treatment V_2 (cfu/m^3)	
Aspergillus niger	120	1	8.23×10^4	3.96×10^4	51.88	9.17×10^4	7	99.99
		2	8.93×10^4	4.50×10^4	48.60	9.54×10^4	7	99.99
		3	9.15×10^4	4.65×10^4	49.18	9.79×10^4	7	99.99
		Mean						99.99

Note: The negative control group was sterile growth
#= This test was conducted by Intertek authorized subcontract lab.

Date sample received: Apr 13, 2020
Testing period: Apr 14, 2020 to May 13, 2020

****

End of report

Intertek GM Testing Service Zhuhai Co. Ltd.
珠海天祥粤澳质量技术服务有限公司

6/F, R&D and Testing/B, Guangdong-Macau TCM Park commercial Service center, 2522 Huan Dao Bei Road, Hengqin New Area, Zhuhai, China
中国珠海市横琴新区环岛北路 2522 号粤澳合作中医药科技产业园研发检测大楼 6 楼

Tel:+86756 2167557
www.intertek.com.cn
www.intertek.com