dentair

GZ Institute of Microbiology

TEST REPORTS

All tests conducted with representative sample units

GZ INSTITUTE OF MICROBIOLOGY

Sterilization Rate

TEST REPORT

Test No.KJ20202504

GZ INSTITUTE OF MICROBIOLOGY

TEST REPORT

Date Received: Jul. 02, 2020
Date Analyzed: Jul. 02, 2020

Name of Sample	Air Purifier	Source of Sample	Delivery
Applicant	Bryant Medical LTD	Client	Chen Meifang
Manufacturer	——	Brand	dentair®
Type and Specification	FOZKYGB-03	Quantity of Sample	1PC
Date of Production	——	State of Sample	Machine
Batch Number	——	Packing of Sample	In box
Sample Picture			
Standard and Methods	1. <Technical Standard For Disinfection>2002-2.1.3 Air disinfection effect evaluation test 2. Referring to T/GIEHA 009-2018 The method for removing allergens of air cleaner		
Items of Analysis	1. Killing Rate (*Staphylococcus aureus* ATCC 6538, *Escherichia coli* 8099, *Klebsiella pneumoniae* ATCC 4352) 2. *Mite Antigen Removal Rate (*Dust mite Der f* 1)		
Remarks	——		

To be continued

GZ INSTITUTE OF MICROBIOLOGY

TEST REPORT

Date Received: Jul. 02, 2020
Date Analyzed: Jul. 02, 2020

Method for Testing Air Disinfection:

1. Test Equipments
   1) Test microorganism: *Staphylococcus aureus, Escherichia coli*, *Klebsiella pneumoniae*
   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) °C
   3) Environment humidity: (50~70) % RH
3. Operation Conditions of the Machine
   Set the switch to position "The highest gear".
4. Test Procedures
   1) Get a bacteria slant culture (4~5 generation) which is incubated at 37 °C 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 respectively, close the door, and open the HEPA filter. Simultaneously operate the environmental control devices until the experimental cabin temperature to be (20~25)°C , relative humidity to be (50~70)%RH, 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 test group started the air purifier and sampled after 60 min of action, and the control group also sampled in the corresponding time period.
   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.
5. Computational Formula

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

Where: V_0 = Original Bacteria Count of Control group; V_t = Bacteria Count after Treatment of Control group .

Killing 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.

To be continued

GZ INSTITUTE OF MICROBIOLOGY

TEST REPORT

Date Received: Jul. 02, 2020
Date Analyzed: Jul. 02, 2020

Test results

Number of Sample	Test Time (min)	Test Bacteria	Test Number	Control Group			Test Group		Killing 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)	
KJ20202504-1	60	*Staphylococcus aureus*	1	1.22×10^5	9.68×10^4	20.66	1.36×10^5	7	99.99
			2	1.27×10^5	1.03×10^5	18.90	1.34×10^5	7	99.99
			3	1.39×10^5	1.11×10^5	20.14	1.45×10^5	7	99.99
		Escherichia coli	1	1.19×10^5	7.99×10^4	32.86	1.25×10^5	7	99.99
			2	1.14×10^5	7.52×10^4	34.04	1.10×10^5	7	99.99
			3	1.30×10^5	8.86×10^4	31.85	1.41×10^5	7	99.99
		Klebsiella pneumoniae	1	1.24×10^5	9.06×10^4	26.94	1.20×10^5	7	99.99
			2	1.17×10^5	8.35×10^4	28.63	1.33×10^5	7	99.99
			3	1.08×10^5	7.87×10^4	27.13	1.29×10^5	7	99.99

Note: The negative control group was sterile growth.

To be continued

GZ INSTITUTE OF MICROBIOLOGY

Clean Air Delivery

TEST REPORT

Report Number	KY20200550
Name of Sample	Air Purifier
Applicant	Bryant Medical LTD

Test No. KY20200550

GZ INSTITUTE OF MICROBIOLOGY

TEST REPORT

Date Received: Jul. 02, 2020
Date Analyzed: Jul. 31, 2020

Name of Sample	Air Purifier	Source of Sample	Delivery
Applicant	Bryant Medical LTD	Client	Chen Meifang
Manufacturer	——	Brand	dentair®
Type and Specification	FOZKYGB-03	Quantity of Sample	1PC
Date of Production	——	State of Sample	Machine
Batch Number	——	Packing of Sample	In box
Sample Picture			
Standard and Methods	Referring to ANSI/AHAM AC-1-2019 Method for Measuring Performance of Portable Household Electric Room Air Cleaners		
Items of Analysis	CADR (Pollen)		
Remarks	——		

To be continued

Test No. KY20200550

GZ INSTITUTE OF MICROBIOLOGY

TEST REPORT

Date Received: Jul. 02, 2020
Date Analyzed: Jul. 31, 2020

Method for Measuring Clean Air Delivery Rate of Pollen:

1. Test Object
   Particulate (5~11μm)
2. Test Conditions:
   1) Environment temperature: (21 ± 3)℃
   2) Environment humidity: (40±5) %RH
3. Test Equipment
   Test chamber (30m^3), Aerosol Spectrometer (TSI 3340), Aerosol Diluter (TSI 3302A), Fluidized Bed Aerosol Generator (TSI 3400A)
4. Operational Conditions of the Machine
   Set the switch to position "The highest gear".
5. Test Procedure
   1) Place the air cleaner to be tested in the test chamber in accordance with standard request and set the air cleaner controls to the conditions for test. Test for proper operation, then turn off the air cleaner.
   2) Using the test chamber HEPA filter, allow the test chamber air to clean until the background concentration in the size range of (5~11μm) to reaches a concentration of less than 0.03 particles/cm^3, Simultaneously operate the environmental control devices until the test chamber conditions.
   3) Dust is generated in the test chamber by connecting the dust generator, and the pollen generation stops when the pollen concentration reaches (4~9 particles/cm^3).
   4) After the pollen reaches the concentration, the fan will continue mixing for 1min, then turn off and rest for 1min, and confirm again whether the pollen concentration is up to the standard.
   5) The air cleaner was turned on for t=0min. Starting from 0min, pollen concentration data were collected every 1min by Aerosol Spectrometer for 10min.
   6) Turn off the air cleaner and record the temperature and humidity during the test.
   7) Test the natural decay according to the steps 1)~ 6), except that the air cleaner is unoperated.
6. Computational Formula
   $CADR = (k_e - k_n) \times V$
   Where: k_e = total decay constant; k_n = natural decay constant; V = volume of the test chamber, m^3

Test Results

Number of Sample	Pollutant	Natural Decay Constant k_n (min^{-1})	CADR (ft^3/min)
KY20200550-1	Pollen	0.14298	353.9

Note: 1ft^3=0.0283m^3, 353.9ft^3/min=600.92m^3/h.

End of report

Editor [signature] Checker [signature] Issuer [signature] Date Reported 2020.8.10

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GZ INSTITUTE OF MICROBIOLOGY

Sterilization Rate

TEST REPORT

Report Number	KY20200548
Name of Sample	Air Purifier
Applicant	Bryant Medical LTD

Test No. KY20200548

GZ INSTITUTE OF MICROBIOLOGY

TEST REPORT

Date Received: Jul. 02, 2020
Date Analyzed: Jul. 09, 2020

Name of Sample	Air Purifier	Source of Sample	Delivery
Applicant	Bryant Medical LTD	Client	Chen Meifang
Manufacturer	——	Brand	dentair®
Type and Specification	FOZKYGB-03	Quantity of Sample	1 Set (3 PCS)
Date of Production	——	State of Sample	Machine
Batch Number	——	Packing of Sample	In box
Sample Picture			
Standard and Methods	1. Referring to GB/T 18801-2015 Air cleaner 2. Referring to <Technical Standard For Disinfection> 2002-2.1.3 Air disinfection effect evaluation test		
Items of Analysis	Removal Rate (*Influenza A virus* A/PR8/34 H1N1)		
Remarks	——		

To be continued

Test No. KY20200548

GZ INSTITUTE OF MICROBIOLOGY

TEST REPORT

Date Received: Jul. 02, 2020
Date Analyzed: Jul. 09, 2020

Test Method for Purification Effect of Airborne Virus Aerosols

1. Test Equipment
   1) Strain: *Influenza A virus* A/PR8/34 H1N1
   2) Cells: MDCK
2. Test Conditions
   1) Environment temperature: (23~25) ℃
   2) Environment relative humidity: (50~60) %
   3) Test time: 60 min
   4) The volume of the test chamber: 30 m^3
   5) Machine setting: "The highest gear".

Test Results

Virus	Test Time (min)	Test Number	Virus Titer of Control Group			Virus Titer of Test Group		Removal Rate (%)
			Original Concentration ($TCID_{50}$ /m^3)	Final Concentration ($TCID_{50}$ /m^3)	Natural Decay Rate (%)	Original Concentration ($TCID_{50}$ /m^3)	Final Concentration ($TCID_{50}$ /m^3)	
A/PR8/34 (H1N1)	60	1	3.69×10^6	7.03×10^5	80.9	5.46×10^6	/	≥99.9
		2	2.49×10^6	5.85×10^5	76.5	1.17×10^6	/	≥99.9
		3	7.89×10^5	1.98×10^5	74.9	3.69×10^6	/	≥99.9

Note: "/" means not detected.

*** **End of report*****

Editor Checker Issuer Date Reported

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