

VIRAL REMOVAL RATE



中国认可
国际互认
检测
TESTING
CNAS L7673

TEST REPORT

Applicant : ACCO Brands, Inc.
Address : Four Corporate Drive | Lake Zurich, IL 60047 | USA

The following merchandise was (were) submitted and identified by the client as:

Name of Sample : TruSens Z-1000 Air Purifier
Test Type : Commission
Sample Quantity : 1 PC
Model : Z-1000
Batch No. : 2021-08-11
Brand : TruSens
Manufacturer: Airplove(Xiamen)Electronic Co., Ltd
Sample Received : 2021/08/13
Test Period : 2021/08/13 – 2021/09/26
Test Items : Please refer to next page(s).
Test Method : Please refer to next page(s).
Test Result : Please refer to next page(s).
Sample Description : Air purifier+STD filter.Test sample originated from mass production, UV system is turned off.
Note: The sample was equipped with standard filter consisting of 102 pleat 80gsm H10 HEPA.

Prepared by: 黄婉盈

Approved by: [Signature]

Checked by: 叶智坚

Official Seal: _____



TEST RESULTS(1):

Table 1 Summary of test results							
Test Item	Model	Test Strain	Test Time (min)	Mean Natural Decay Rate (%)	Mean Removal Rate (%)	Mean Log Reduction	Test Method(s)
Removal Rate	Z-1000	HCoV-229E	120	82.92	99.99	3.93	Technical Standards for Disinfection (2002) 2.1.3

*****TO BE CONTINUED *****

检测



TEST RESULTS(2):

Table 2 Test data of virus aerosol removal									
Virus strain	Test time (min)	Test number	Control group			Test group		Removal rate K_t (%)	Log Reduction L_t
			0 min V_0 (TCID ₅₀ /m ³)	120 min V_t (TCID ₅₀ /m ³)	Natural Decay Rate N_t (%)	0 min V_1 (TCID ₅₀ /m ³)	120 min V_2 (TCID ₅₀ /m ³)		
HCoV-229E	120	1	3.80×10^7	6.01×10^6	84.18	9.21×10^7	1.63×10^3	99.99	3.95
		2	5.27×10^7	8.85×10^6	83.21	8.85×10^7	1.63×10^3	99.99	3.96
		3	5.36×10^7	9.98×10^6	81.38	7.03×10^7	1.77×10^3	99.99	3.87
		Mean			82.92			99.99	3.93

*****TO BE CONTINUED *****



Inspection instructions

1. Test method

Technical Standards for Disinfection (2002) 2.1.3

2. Test item

Virus strain: HCoV-229E (VR-740)

Cell: Huh-7 cell

3. Test equipment & materials

Test chamber (30 m³), Sampling pump, Aerosol generator, Liquid impingement sampler

4. Test condition

1) Environment temperature: 20~25 °C

2) Environment humidity: 50~70 %RH

5. Operation condition of the machine

Set the fan speed to position "Turbo".

6. Test procedure

1) Adjust the temperature and relative humidity of the test chamber according to the requirements.

2) Place the equipment to the test chamber and then close the door.

3) Turn on the aerosol generator to atomize the virus and mix with a fan. After atomizing, virus was placed for a certain time.

4) Collect the sample of the control group and test group before purification.

5) Purification was carried out in the test chamber. The control chamber was used as comparison

6) At the specified intervals, the test chamber and the control chamber were sampled at the same time.

7) To measure the virus titer of the collected sample, the procedure was as follows:

a) The collected samples were diluted 10 times.

b) The diluent was added to 96-pore cell culture plates with monolayer Huh-7 cells, and the control group added to the equivalent culture media.

c) Cells were cultured at 37°C and 5% CO₂ for 60 min and the supernatant was discarded.

d) 400 IU/mL double antibody was added to maintain the culture media for 3~5 days.

e) The cell morphology was observed.

f) When the Huh-7 cells appeared to become round and shrink the cytopathic changes were recorded.

g) Viral titers were calculated by the Reed-Muench method and expressed as TCID₅₀.

8) Calculate the virus titer and the removal rate, and this experiment repeated 3 times.

7. Computational formula

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

(V₀ = the original virus titer of control group, V_t = the final virus titer of control group)

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

(V₁ = the original virus titer of test group, V₂ = the final virus titer of test group)

$$\text{Log Reduction } L_t = -\log_{10} \left(\frac{-K_t}{100} + 1 \right)$$

*****TO BE CONTINUED *****

SAMPLE PHOTO



***** END OF REPORT *****

Statement

1. This report is issued by The CAS Testing Technical Services (GuangZhou) Co.,Ltd. (hereinafter referred to as “Our Company”).
2. This report is invalid if not affixed with authorized stamp of test and paging seal.
3. This report is invalid without signature of verifier and approver.
4. This report is invalid if being supplemented, deleted or altered.
5. Without written permission of our Company, this report can not be reproduced in part (except in whole).
6. The result(s) shown in this report refer only to the sample(s) tested.
7. Objections to this report must be submitted to our Company within 15 days. Otherwise, it will automatically deem to have accepted this report.
8. The Client shall be responsible for the accuracy, authenticity and completeness of the samples and information submitted for inspection, and the disputes arising therefrom shall be borne by the Client.
9. As any reports is issued as a result of this application for testing services, our Company will strictly keep confidentiality to the Clients. Except where disclosure is required on the basis of laws, regulations, judgments, and rulings (including in accordance with summons, court, or government proceedings).
10. The result(s) or conclusion(s) shown in this report about the description of the characteristics, composition, properties or quality are based on the specific time, methods and applicable criteria. Using different methods and criteria or under different environmental conditions for testing may come to different conclusions.
11. The inspected project has not obtained the qualification recognition.The data result(s) just for scientific research,teaching,internal quality control etc.
12. Since our Company’s causes lead to modify the contents of this report, our Company shall reissue this report and bear the modification cost. The Client shall return the original report. Since the Client’s causes lead to modify the contents of this report, the Client need to submit an application form for the change of report to our Company. The Client shall bear the modification cost and return the original report if our Company approves to reissue this report.

