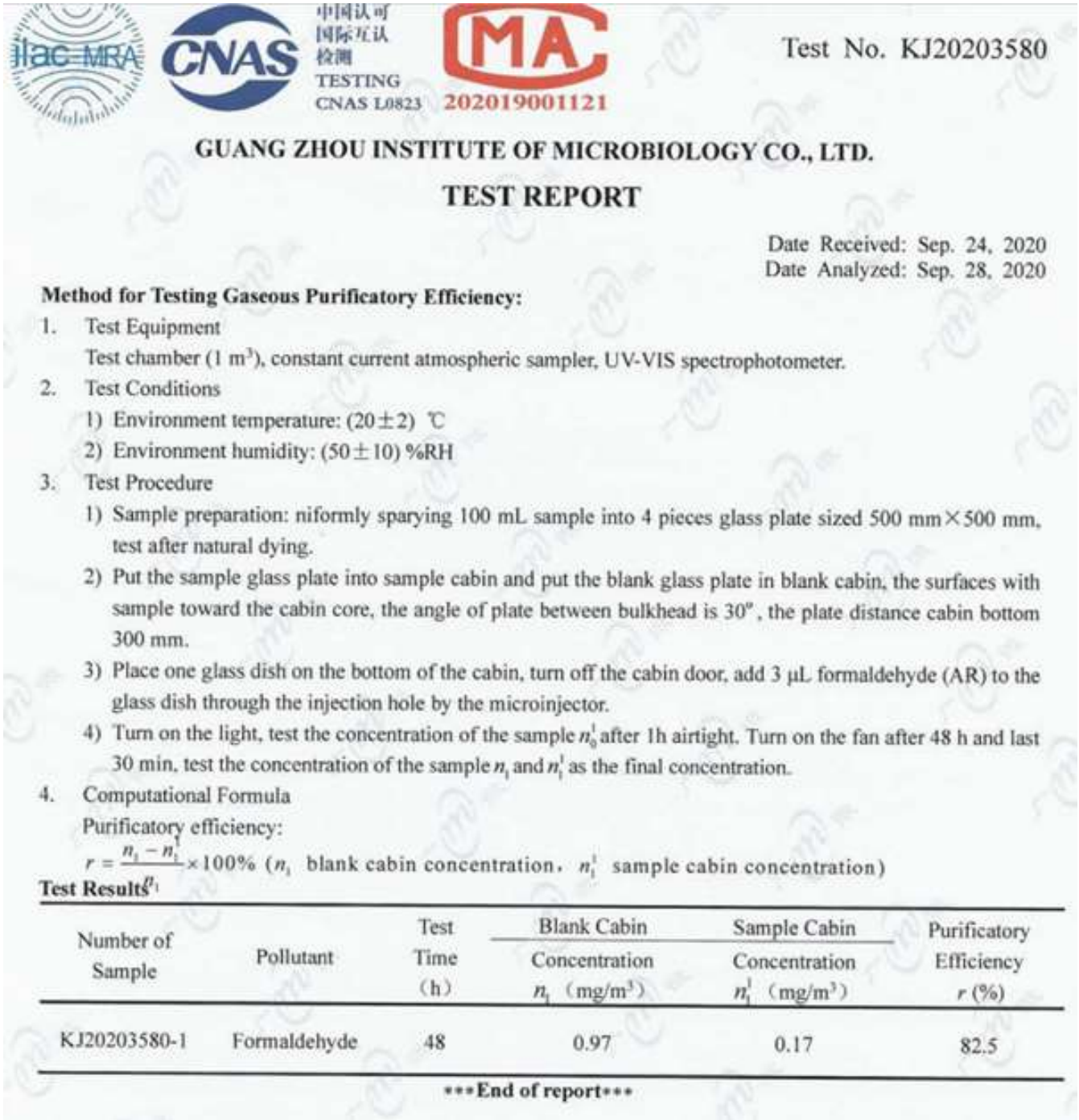
Test reports & certificates



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202019001121

Test No. KJ20203580

GUANG ZHOU INSTITUTE OF MICROBIOLOGY CO., LTD.

TEST REPORT

Date Received: Sep. 24, 2020
Date Analyzed: Sep. 28, 2020

Method for Testing Gaseous Purificatory Efficiency:

1. Test Equipment
   Test chamber (1 m^3), constant current atmospheric sampler, UV-VIS spectrophotometer.
2. Test Conditions
   1) Environment temperature: (20±2) ℃
   2) Environment humidity: (50±10) %RH
3. Test Procedure
   1) Sample preparation: niformly sparying 100 mL sample into 4 pieces glass plate sized 500 mm×500 mm, test after natural dying.
   2) Put the sample glass plate into sample cabin and put the blank glass plate in blank cabin, the surfaces with sample toward the cabin core, the angle of plate between bulkhead is 30°, the plate distance cabin bottom 300 mm.
   3) Place one glass dish on the bottom of the cabin, turn off the cabin door, add 3 μL formaldehyde (AR) to the glass dish through the injection hole by the microinjector.
   4) Turn on the light, test the concentration of the sample n_0^1 after 1h airtight. Turn on the fan after 48 h and last 30 min, test the concentration of the sample n_1 and n_1^1 as the final concentration.
4. Computational Formula
   Purificatory efficiency:
   $r = \frac{n_1 - n_1^1}{n_1} \times 100\%$ (n_1 blank cabin concentration, n_1^1 sample cabin concentration)

Test Results

Number of Sample	Pollutant	Test Time (h)	Blank Cabin Concentration n_1 (mg/m³)	Sample Cabin Concentration n_1^1 (mg/m³)	Purificatory Efficiency r (%)
KJ20203580-1	Formaldehyde	48	0.97	0.17	82.5

End of report

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202019001121

推荐实验室

Test No.WJ20204158

GUANG ZHOU INSTITUTE OF MICROBIOLOGY CO.,LTD.

TEST REPORT

Date Received: Sept.24, 2020
Date Analyzed: Oct.13, 2020

Test Results

Number of Sample	Test Condition	Test Bacteria				
		Escherichia coli	*Staphylococcus aureus*	*Candida albicans*	*Klebsiella pneumoniae*	*Pseudomonas aeruginosa*
WJ20204158-1	Bacteria Count of 0h Control Sample (cfu)	2.0×10^5	2.0×10^5	2.6×10^5	2.1×10^5	2.1×10^5
	Bacteria Count of Treatment after Control Sample in Bright Condition(cfu)	1.1×10^7	1.9×10^6	1.3×10^6	6.4×10^6	1.0×10^7
	Bacteria Count of Treatment after Control Sample in Dark Condition(cfu)	1.6×10^7	2.0×10^6	3.5×10^6	7.2×10^6	3.0×10^7
	Bacteria Count of Treatment after Test Sample in Bright Condition(cfu)	3.1×10^5	1.9×10^5	7.0×10^4	3.9×10^5	2.0×10^5
	Bacteria Count of Treatment after Test Sample in Dark Condition(cfu)	1.7×10^5	2.1×10^5	6.8×10^4	7.6×10^5	9.0×10^5
	Total Antibacterial Rate R_g(%)	97.2	90.0	94.6	93.9	99.8
	Photocatalytic antibacterial contribution Rate R_z (%)	0.0	9.5	0.0	48.7	97.8

Note: According to the test method of this standard, the evaluation of total antibacterial rate (R_g) is: antibacterial rate≥90%, products have antibacterial effect; antibacterial rate≥99%, products have strong antibacterial effect.

End of report

Test No. KY20200699

GUANG ZHOU INSTITUTE OF MICROBIOLOGY CO., LTD.

TEST REPORT

Date Received: Sep. 24, 2020
Date Analyzed: Oct. 05, 2020

Killing Test:

1. Test Supplies
   1) Strain: *Influenza A virus* A/PR8/34 H1N1
   2) Cells: MDCK
2. Test Conditions
   1) Environmental temperature: (23~25) ℃
   2) Environmental humidity: (63~69) %RH
   3) Test time: 24 h
3. Test Procedure
   1) On the first day of the experiment, MDCK cells were inoculated into a 96-well cell culture plate, with 1.5×10^4 cells/well, and the cells were standby when they grew into a monolayer..
   2) 9 slices with an area of 9 cm^2 were soaked in Bio Based industrial coating antibacterial liquid for 10 min, and then taken out and dried.
   3) Add 0.2 ml of H1N1 virus droplet containing $10^{6.5}$ $TCID_{50}$ onto the carrier piece, spread evenly and dry to complete the preparation of the virus smear.
   4) The virus smear was placed under the ultraviolet lamp of 365 nm, and the light intensity was adjusted to 0.1 mW/cm^2 for 24h (light condition). The other group was placed in a dark environment without irradiation (dark conditions). The virus was added directly to the carrier piece for 24 h (the 24-hour control group). At the same time, the control group and the control group of 0 h were set up.
   5) After 24 h of irradiation, each group was treated with 1ml serum-free medium to recover the virus.
   6) The recovered virus liquid was diluted 10-fold with serum-free DMEM. Then add MDCK cells that grow into a single layer, and culture for 4-5 days.
   7) The lesion was recorded. $TCID_{50}$ was calculated according to the Reed-Muench formula.
4. Test Results

Virus	Test Time (h)	Group	First Test ($TCID_{50}$/ml)	Second Test ($TCID_{50}$/ml)	Third Test ($TCID_{50}$/ml)	Mean ($TCID_{50}$/ml)	Mean Inactivation Log Value	Killing Rate (%)
A/PR8/34 (H1N1)	24	Blank Control Group	6.32×10^5	1.12×10^6	6.32×10^5	7.95×10^5	——	——
		0h Control Group	1.12×10^6	1.12×10^6	1.12×10^6	1.12×10^6	——	——
		24h Control Group	2.00×10^4	1.12×10^5	6.32×10^4	6.51×10^4	——	——
		Dark Condition Test Group	1.12×10^2	1.12×10^2	6.32×10^2	2.85×10^2	2.36	99.56
		Light Condition Test Group	<6.32	<6.32	<6.32	<6.32	>4.01	>99.99

End of report

Editor [illegible] Checker [illegible] Issuer [illegible] Date Reported 2020.10.30

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Certificate of antimicrobial properties

CERTIFICATE

has been successfully tested using QualiScreen SOP 3.5 (**S**tandard **O**peration **P**rocedure) "Test to determine the antimicrobial efficacy of materials against Staphylococcus epidermidis"

and is considered a n t i m i c r o b i a l

against Staphylococcus epidermidis DSM 18857

>99,9 %

The bearer of this certificate is entitled to affix the following seal to parts or surfaces made from the tested material

Nuremberg, Germany, July 30th 2020

Managing Director

Laboratory Director

Certificate of antimicrobial properties

CERTIFICATE

has been successfully tested using QualiScreen SOP 3.5 (**S**tandard **O**peration **P**rocedure) "Test to determine the antimicrobial efficacy of materials "

and is considered a n t i m i c r o b i a l

against MRSA *Staphylococcus aureus* DSM 21979

>99,9 %

The bearer of this certificate is entitled to affix the following seal to parts or surfaces made from the tested material:

Nürnberg, 30.07.2020

Managing Director

Laboratory Director

QualityLabs BT GmbH, Neumeyerstraße 46a, 90411 Nuremberg, Germany