EN 14126 Certified Medical Protection Hooded Coverall

Cat No.	Basic Weight	Color
VB-4570K	60 gam	White

Size(in)	М	L	XL
A	12	13	14
<b>B</b>	10	10.5	11
•	29	30	31
0	26	27	28
•	64	66	68
•	30	31	32









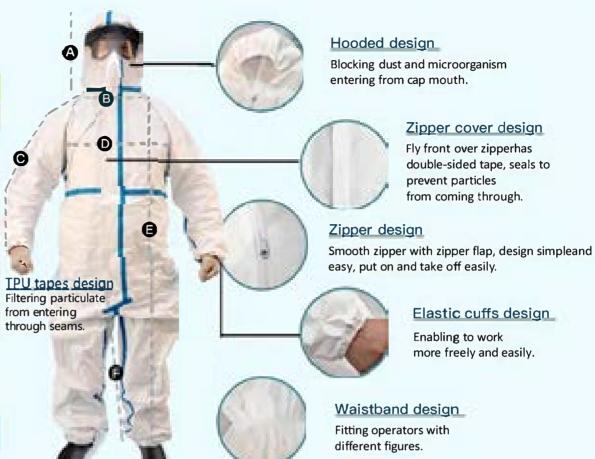


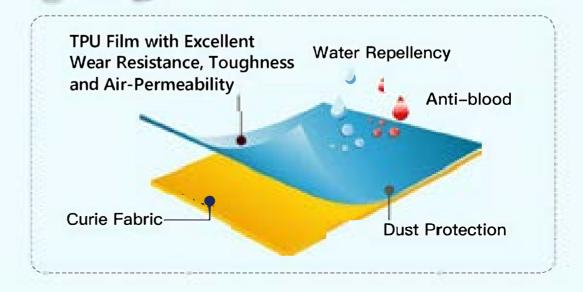






Main material	Treated Curie fabric
Usage	PPE CATEGORY III  - unique Virus and Bacteria Killing properties  - provides advanced protection against hazardous particles and certain liquid splashes, sprays and jets  - extra protection with soft anti-static breathable layer  - suitable for medical, chemical spills, tank cleaning, decontaminating, chemical mixing and handling, pesticide spraying
Properties	EN 14605 1. Type 3 High pressure liquid jets protection 2 Type 4 Low pressure liquid sprays protection EN 13982-1 3. Type 5 Hazardous particle protection EN 13034 4. Type 6 Light liquid splashes protection EN 14126 5. Biohazard protection







- Ultra-high bio-filtration efficiency layer
- Strong positively charged filter traps and eliminates virus and bacteria, which are negatively charged, by tearing the membrane apart under denaturation
- Slow filtering degradation rate for the fabric with life-time for 3-5 years
- Better protection for operators with property of killing virus and bacteria

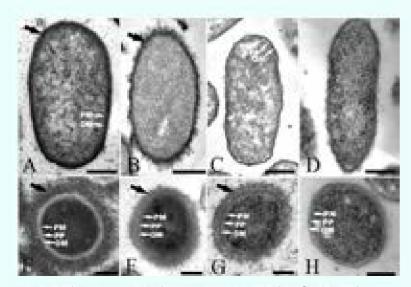


Fig. 1 Illustration of bacteria caught by Curie fabric

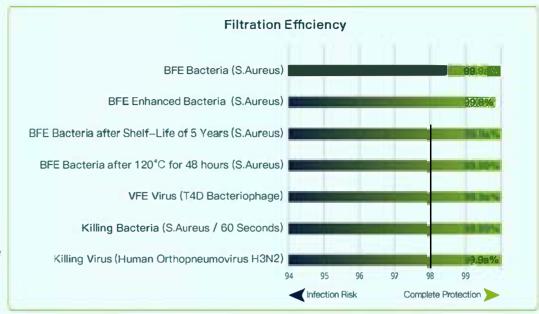


Fig. 2 Charts of high filtration efficiency performed by Curie fabric

## Breakthrough of Curie Fabric

	Curie	Market
Killing of bacteria and virus	✓	X
Prevention of air floating of bacteria and virus during taking off the overall	✓	×
Prevention of second inflection during unwearing and disposal	~	×

Guidelines for use

## How to undress

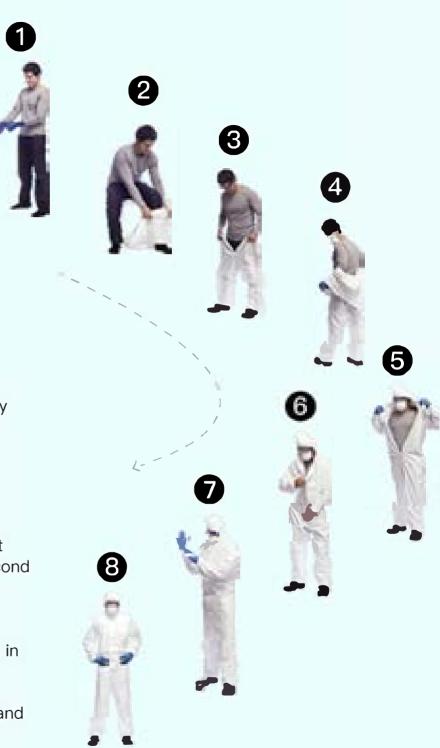
The PPE should be put on and taken off as follows:

## > Putting the PPE on:

- before putting the PPE on, check all parts to ensure none are missing or damaged
- remove jewellery and watches
- put on the suit and zip it up to the hips
- put on the boots
- put on the filtering face mask and check its tight fit
- put on the safety glasses
- pull the hood of the suit over your head and zip the suit until it is completely closed. To cover the chin and the zip, press the front flap into place
- put on the safety gloves and pull them over the cuff of the sleeves

### > Taking the PPE off:

- disinfect the safety gloves but do not remove
- pull down the hood and pull the suit over the shoulders, turming it inside out down to the hips. At the same time, pull your arms out of the sleeves (a second person with safety gloves and a filtering face mask can help)
- take the suit completely off, removing the boots at the same time
- remove the safety gloves by pulling them inside out
- remove the glasses by drawing them forward from the back and place them in the designated place
- remove the filtering face mask in the same way
- disinfect your hands and finish off by thoroughly washing your hands, face and any other contaminated areas of skin with water and a disinfectant lotion

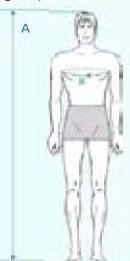


Instructions for use

## How to make the right choice

To ensure a perfect fit and to guarantee maximum safety when working with hazardous substances, the disposable protective coveralls are available in a wide range of sizes. The table shows the body measurements and the corresponding sizes. These size definitions are based on actual body measurements taken while wearing underwear but without wearing shoes.

These sizes may differ from standard clothes sizes, so please always select according to your actual body measurements and not your usual clothes sizes!



Size	Body height in cm (A)	Chest measurement in cm (B)
М	170-176 cm	92-100 cm
L	176-182 cm	100-108 cm
XL	182-188 cm	108-116 cm

### Using disposable protective coverall

Prior to use it is essential to check the protective coverall for any damage e.g. broken seams, defective zipper closure or other visible defects which may impair its protection levels.

#### Storage

disposable protective coverall must be stored in its original packaging in a dry place away from sunlight.

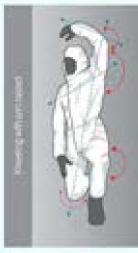














## Disposal

The products must be disposed after use in accordance with respective rules and regulations. The products are only suitable for a single use.

### Washing disposable suits

The disposable suits are only suitable for a single use and must not be washed.





## **Authority Certification**



Viral Filtration Efficiency (VFE) in ASTM F2101

Proven that Curie technology can effectively filter virus (>99.9a%)

[p.7-8]



Bacterial Filtration Efficiency with Increased Delivery Challenge (BFE) in ASTM F2101 and

EN14683

Proven that Curie technology can effectively filter increased challenge of bacteria (99.8%)

[p.9-10]



Viral Filtration Efficiency (VFE) in ASTM F2101

Proven that Curie technology can effectively filter virus (>99.9a%)

[p.11-15]



Bacterial Filtration Efficiency (BFE) in ASTM F2101

Proven that Curie technology can effectively filter bacteria (>99%)

[p.16-17]



Standard Guide for Accelerated Ageing of Sterile Barrier Systems for Medical Devices in

ASTM F1980-16

Bacterial Filtration Efficiency (BFE) in ASTM F2101

Proven that Curie technology can effectively kill bacteria (>99%)

[p.18-19]



Determination of Antibacterial Activity of Textile Products BS EN ISO 20743

Proven that Curie technology can effectively kill bacteria (>99%), time for killing bacteria was

less than 60 seconds

[p.20-21]



Determination of Antiviral Activity of Textile Products

BS ISO 18184

Proven that Curie technology can effectively kill virus (>99.99%)

[p.22-25]

93/42/ECC



Sponsor: Eddie Yam Intertek Testing Services Hong Kong Ltd. 1/F, Garment Centre, 576 Castle Peak Road Kowloon. HONG KONG

## Viral Filtration Efficiency (VFE) Final Report

Test Article: modified non-woven

colour. White

Style #1001

Study Number: 1280865-S01

Study Received Date: 25 Mar 2020

Testing Facility: Nelson Laboratories, LLC

6280 S. Redwood Rd.

Salt Lake City, UT 84123 U.S.A.

Test Procedure(s):

Standard Test Protocol (STP) Number: STP0007 Rev 16

Deviation(s):

None

Summary: The VFE test is performed to determine the filtration efficiency of test articles by comparing the viral control counts upstream of the test article to the counts downstream. A suspension of bacteriophage ΦX174 was aerosolized using a nebulizer and delivered to the test article at a constant flow rate and fixed air pressure. The challenge delivery was maintained at 1.1 - 3.3 x 103 plaque forming units (PFU) with a mean particle size (MPS) of 3.0 μm ± 0.3 μm. The aerosol droplets were drawn through a six-stage, viable particle, Andersen sampler for collection. The VFE test procedure was adapted from ASTM F2101.

All test method acceptance criteria were met. Testing was performed in compliance with US FDA good manufacturing practice (GMP) regulations 21 CFR Parts 210, 211 and 820

Test Side: Either

Test Area: ~40 cm2

VFE Flow Rate: 28.3 Liters per minute (L/min)

Conditioning Parameters: 85 ± 5% relative humidity (RH) and 21 ± 5°C for a minimum of 4 hours

Positive Control Average: 1.6 x 10<sup>3</sup> PFU

Negative Monitor Count:

<1 PFU

MPS:

2.9 µm

Study Director



Luskin es W. Luskin

Study Completion Date

FRT0007-0001 Rev 16 Page 1 of 2



#### Results:

Test Article Number	Percent VFE (%)
1	>99.9*
2	>99.9*
3	>99.9*
4	>99.9*
5	>99.08

<sup>\*</sup> There were no detected plaques on any of the Andersen sampler plates for this test article.

The filtration efficiency percentages were calculated using the following equation:

$$\%VFE = \frac{C - T}{C} \times 100$$

C = Positive control average

T = Page count total recovered downstream of the test article Note: The plate count total is available upon request





Sponsor: Wong Chak Ming Hong Kong Medical Supply Limited Unit A3, 2F Mai Wah Industrial Bldg. 1-7 Wah Sing Street Hong Kong, CHINA

## Bacterial Filtration Efficiency (BFE) Final Report

Test Article: HKMSLMASK000 Purchase Order: HKMSLP020200326

Study Number: 1282265-S01 Study Received Date: 28 Mar 2020

Testing Facility: Nelson Laboratories, LLC

6280 S. Redwood Rd.

Salt Lake City, UT 84123 U.S.A.

Test Procedure(s): Standard Test Protocol (STP) Number: STP0004 Rev 18

Deviation(s): None

Summary: The BFE test is performed to determine the filtration efficiency of test articles by comparing the bacterial countrol counts upstream of the test article to the bacterial counts downstream. A suspension of Staphylococcus aureus was aerosolized using a nebulizer and delivered to the test article at a constant flow rate and fixed air pressure. The challenge delivery was maintained at 3.5 x 10<sup>3</sup> colony forming units (CFU) with a mean particle size (MPS) of 3.0 ± 0.3 µm. The serosols were drawn through a six-stage, viable particle, Andersen sampler for collection. This test method complies with ASTM F2101-19 and EN 14583/2019, Annex B, with the exception of the higher or allenge terral, which may represent a more

All test method acceptance criteria were met. Testing was performed in compliance with US FDA good manufacturing practice (GMP) regulations 21 CFR Parts 210, 211 and 820.

Test Side: Inside BFE Test Area: ~40 cm<sup>2</sup>

BFE Flow Rate: 28.3 Liters per minute (L/min)

Conditioning Parameters. 85 ± 5% relative humidity (RH) and 21 ± 5°C for a minimum of 4 hours

Test Article Dimensions: ~176 mm x ~160 mm

Positive Control Average: 3.5 x 10<sup>3</sup> CFU

Positive Control Average 3.5 x 10<sup>3</sup> Negative Monitor Count: <1 CFU

MPS: 3.0 µm

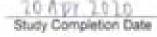
The positive control average was out of specification per STP0004 Rev 18 section 6.1 which states, "The BFE positive control average shall be maintained at 1.7-3.0 x 10<sup>3</sup> CFU." Testing with a more severe challenge to the test articles represents a worse case. The sponsor accepted the use of the night challenge therefore the results are considered valid at the testing conditions that occurred.















#### Results:

Test Article Number	Percent BFE (%)
1	99.8
2	8,99
3	99.8
4	99.8
5	99.8

$$\%BFE = \frac{C - T}{C} \times 100$$

The filtration efficiency percentages were calculated using the following equation:  $C = \text{Positive control average} \\ T = \text{Plate count total recovered downstream of the test article} \\ \text{Note: The plate count total is available upon request}$ 





## TEST REPORT

Number: HKGT05112613-S1

Applicant: CURIE LIMITED

B3-1 G/F

SUPERLUCK INDL CTR PHASE 2

57 SHA TSUI RD TSUEN WAN NT HK

Attn: ALDRIN OR

Date: Apr 22, 2020

This is to supersede report no. HKGT05112613 dated Apr 21,

2020

Sample Description As Declared:

No. Of Sample : Several

Buyer's Name Agent's Name

Manufacturer's Name: Curie Limited

Sample Description : Curie Ultrahigh-Efficiency Viral Filter A Sample Description : Curie Ult

Colour : White Style No. : 1001 Order No. / PO No. : -Product End Uses

Fibre Content : Nonwoven Fabric/GMT Weight : 20g Ref.

Date Received/Date Test Started: Apr 15, 2020 Applicant's Provided Care Instruction/Label:

For and on behalf of

Intertex Testing Services Hong Kong Limited

Teddy Y. N. Chung

Director



Page 1 Of 4





## TEST REPORT

Number: HKGT05112613-51

Original Sample Photo:



For any queries on this report, you are welcome to contact our customer service representatives:

US3

Angie Yu (852) 98639123 or email to angie.yu@intertek.com

For and on behalf of Intertex Testing Services Hong Kong Limited

Teddy Y. N. Chung Director

Page 2 Of 4





Number: HKGT05112613-S1

### TEST REPORT

Tests Conducted (As Requested By The Applicant)

1 Evaluation of Viral Filtration Efficiency (VFE):

Summary: The VFE test is performed to determine the riltration efficiency of test articles by comparing the viral control counts upstream of the test article to the counts downstream. A suspension of bacteriophage  $\Phi$ X174 was aerosolized using a nebulizer and delivered to the test article at a constant flow rate and fixed air pressure. The challenge delivery was maintained at  $1.1-3.3\times10^3$  plaque forming units (PFU) with a mean particle size (MPS) of  $3.0\pm0.3~\mu$  m. The aerosols droplets were drawn through a six-stage, viable particle, Andersen sampler for collection. The VFE test procedure was adapted from ASTM F2101.

All test method acceptance criteria were met. Testing was performed in compliance with US FDA good manufacturing practice (GMP) regulations 21 CFR Parts 210, 211 and 820.

Test side: Either

Test Area: ~40 cm<sup>2</sup>

VFE Flow Rate: 28.3 Liters per minute (L/min)

Conditioning Parameters:  $85 \pm 5\%$  relative humidity (RH) and  $21 \pm 5$  °C for a minimum of 4 hours

Positive Control Average: 1.6 x 103 PFU

Negative Monitor Count: <1 PFU

MPS: 2.9 µm





TEST REPORT

Number: HKGT05112613-S1

Tests Conducted (As Requested By The Applicant)

Evaluation of Viral Filtration Efficiency (Cont'd)

#### Result:

Test Article Number	Percent VFE (%)
1	>99.9 <sup>a</sup>
2	>99.9ª
3	>99.9ª
4	>99.9ª
5	>99.9 <sup>a</sup>

<sup>\*</sup>There were no detected plaques on any of the Andersan sampler plates for this test article.

The filtration efficiency percentages were calculated using the following equation:

$$\%VFE = \frac{C - T}{C} \times 100$$

C= Positive control average

T= Plate count total recovered downstream of the test article
Note: The plate count total is available upon request

Remark: The test was conducted by competent subcontractor lab.

End of Report

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olied by you and provide no warranty on the tested sample(s) be truly representative of the on, you are responsible for acting as you see fit on the basis of the report results. Intertek is fic instructions received and accepts no responsibility to any parties whatsoever, following the not discharge or release you from your legal obligations and duties to any other person. You rety). Any such third parties to whom this report may be circulated rely on the content of the

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To : CURIE LIMITED Attention : ALDRIN OR

Re : Report Revision Notification

Report Number HKGT05112613 date APR 21, 2020

Please be informed that all the content recorded in the above captioned report will be void. This captioned report is now superseded by a revised Report, Number HKGT05112613-S1, issued on Apr 22, 2020.

Apr 22, 2020

Date:

Thank you for your attention

For and on behalf of

Intertek Testing Services Hong Kong Limited

Teddy Y. N. Chung

Director



Kowloon, Hong Kong



进市部群-多元和新

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#### TEST REPORT

Report number: IRITS202005150001

Date: 15 May 2020

Applicant: Cuce Limited

Room C, 263F,

Tsuen Tung Factory Building, 38-40 Chai Wan Kok Street,

Tsuen Wan, New Territories, Hong Kong

Attn.:

Aldrin Or

Sample Description as Declared:

No. of Sample: TWO (2) pieces of received material in zipper bag packaging

Sample Description: Curie Ultrahigh- Efficiency Viral Filter

Colour: White

Date Received:

8 May 2020

Testing Period:

9 – 14 May 2020

Tests Conducted: As requested by the Applicant, with the details as follow:

Testing Summary: The sample being tested was conditioned for a minimum of 4 hour at 21 ± 5 °C and relative humidity of 65 ± 5 %. The bacterial filtration efficiency (BFE) test was performed by applying a spray of challenge bacterium *Staphylococcus aureus* in peptone water (approximately 2,200 colony forming units per spray) using a trigger sprayer. The sprayed aerosol was then drawn through the material being tested following by a tryptic soy agar plate under vacuum (flow rate: 100 Litres per minute). Number of *Staphylococcus aureus* colonies formed on the tryptic soy agar plate were counted after incubated at 37 ± 2 °C for 48 ± 4 hr. The BFE test procedure was modified from ASTM F2101: 2019.

For and on behalf of Institute for Research in Innovative Technology & Sustainability

The Open University of Hong Kong

Dr. Eric Tung-po Sze

Director



政府創辦·多元劃斷

Government established - Duenafied and innovative

Report number: IRITS202005150001

Date: 15 May 2020

#### Results:

#### Test Sample Number

Test Sample Number	Sectionum Colonies Formed
#1	N.D.°
#2	N.D.a
Negative Control	N.D.a

<sup>&</sup>lt;sup>a</sup> None Detected (N.D.) – There were no detected bacterium colony of *Staphylococcus aureus* found.

### Sample Photo:



<End of Test Report>



#### **TEST REPORT**

Applicant: Curie Limited

Report number: IRITS2020007030001

Room C, 23/F,

Date: 3 July 2020

Tsuen Tung Factory Building, 38-40 Chai Wan Kok Street,

Tsuen Wan, New Territories, Hong Kong

Attn.: Aldrin Or

Sample Description as Declared:

No. of Sample: TWO (2) pieces of composite material for face mask in zipper bag

packaging Curie KV99

Colour: White

Date Received: 15 June 2020 Testing Period: 16 – 24 June 2020

Tests Conducted: As requested by the Applicant, with the details as follow:

Testing Summary: The sample(s) were conditioned at an acceleration temperature of 120  $^{\circ}$ C for 48 hours, followed by pre-conditioning at a minimum of 4 hour at 21  $\pm$  5  $^{\circ}$ C and relative humidity of 65  $\pm$  5  $^{\circ}$ 6. Bacterial filtration efficiency (BFE) test was then performed by spraying the samples with an aerosol of challenge bacterium *Staphylococcus aureus* in peptone water using a nebulizer. The aerosol was then drawn through the samples following by a tryptic soy agar plate under vacuum (flow rate: 100 Litres per minute). Number of *Staphylococcus aureus* colonies formed on the tryptic soy agar plate were counted after incubated at 37  $\pm$  2  $^{\circ}$ C for 48  $\pm$  4 hr. The BFE test procedure was modified from ASTM F2101: 2019.

For and on behalf of Institute for Research in Innovative Technology & Sustainability The Open University of Hong Kong

Dr. Eric Tung-po Sze

Director

Report number: IRITS2020007030001

Date: 3 July 2020

#### Results:

Test Sample Number	Bacterium Colonies Formed	Bacterial Filtration Efficiency
#1	N.D.ª	> 99 %
#2	N.D. <sup>a</sup>	> 99 %
Negative Control	N.D.*	N/A <sup>b</sup>

<sup>\*</sup> None Detected (N.D.) — There were no detected bacterium colony of Staphylococcus aureus found

Remark: The time and temperature selected for the acceleration conditioning were based on ASTM Standard F1980-16 Appendix X1. Accelerated aging of polymers, which are equivalent to five year of room-temperature (20 °C) aging, with an aging factor  $Q_{10} = 2.0$ .

#### Sample Photos:



<End of Test Report>

b N/A - Not Applicable

#### 科技學院 School of Science and Technology

#### **TEST REPORT**

Applicant: Curie Limited

Room C, 23/F,

Tsuen Tung Factory Building, 38-40 Chai Wan Kok Street,

Tsuen Wan, New Territories, **Hong Kong** 

Attn.:

Aldrin Or

Sample Description as Declared:

No. of Sample: ONE (1) piece of textile material in zipper bag packaging said to be RT-

2007-30130-00020

Colour: White

Date Received: 21 May 2020 Testing Period: 2 - 10 July 2020

Tests Conducted: As requested by the Applicant to determine the antibacterial activity of

the sample with reference to BS EN ISO 20743: 2013 Clause 8.2 Transfer

Report number: IRITS2020007130001R1

Date: 23 July 2020

method, with the following deviation:

Shake-out the bacteria from specimens using peptone water

instead of neutralizing solution.

For and on behalf of

Institute for Research in Innovative Technology & Sustainability

The Open University of Hong Kong

Dr. Eric Tung-po Sze

Director



Report number: IRITS2020007130001R1

Date: 23 July 2020

#### Results:

Specimen	Conditions	Number of bacteria* (CFU per specimen)
#1	Shake-out before incubation	0
#2	Shake-out after incubation	0

\*1 millilitre of an inoculum of Stophylococcus oureus with concentration of 1 × 10<sup>6</sup> CFU/ml to 3 × 10<sup>6</sup> CFU/ml was applied onto an agar plate in the transfer method, where each specimen was set on the agar surface and weigh down with a 200 g stainless-steel cylinder for 60 s ± 5 s to transfer the microbial content. Incubation Measurement of the number of bacteria colonies was conducted in accordance with the plate count method specified in Annex C of BS EN ISO 20743:2013.

Opinion(s) and Interpretation(s): Based on the results obtained above, the specimens demonstrated effective antibacterial property to kill bacteria during transfer phase of the experiment.

Note: This Report replaces Report number IRITS2020007130001, which has been obsoleted.

<End of Test Report>





## 广东省微生物分析检测中心

GUANGBONG DETECTION CENTER OF MICROBIOLOGY

# 分析检测报告

REPORT FOR ANALYSIS

报告编号

Report No.

2020FM20686R01

样品名称

Name of Sample

Curie Ultrahigh-Efficiency Viral Filter for KV-99

委托单位

Applicant

汲圳市前海易賽高贸易有限公司

检测类型

Test Type

单位地址: 广州市先烈中路 100 号大院 66 号楼

A branch a butter being a but about a butter about a butter and a butter a

Address: Building 66, No.100 Central Xian Eschool, Guangation, China

邮政编码: 510070

Postcode:

电话号码: (020)87137666

Teh

传真号码: (020)87137668

Fast

周 塩: www.gddcm.com

Websites





## 广东省微生物分析检测中心

GEANGBONG DETECTION CENTER OF MICHOBOLOGY 分析检测报告

REPORT FOR ANALYSIS

think may



样品名称 Name of Sample	Curie Ultrahigh-Efficiency Viral Filter for KV-99	校期类型 Test Type	委托检测
委托单位 Applicant	深圳市前海易賽高贸易有限公司	Address	深圳宝安西多银田工业区 B2 核 310 室
押品未報 Sample Source	委托方送检	样品数量 Sample Quantity	260cm*2m
Spec and Lot № of Sample	40g,批号: 1001	样品状态和特性	月状
接样日期 Sample Received Date	2020-07-15	检测光线日期 Completion Date	2020-07-28
检测依据和方法 Test Standard and Method	TS	O 18184 <sub>1</sub> 2014 (E	
松洲项目 hen Tested	抗病毒活性试验		
-0,00 11000	2222		A 2 . A 2 . A
松 別 社 经 Test Conclusion	该样品所检项目的实现数据见本的		2E MSc 2020-08-30 中日

制 表: Editor 陈颖明

市 栋 大本明

松 准: H





## 广东省微生物分析检测中心

## GEANGDONG DETECTION CENTER OF MICHOBIOLOGY 分析检测结果

ANALYSIS AND TEST BUSILT

报告编号 (Report Nr.): 2020FM20686R01

实验病毒 及宿主	実験 序号	对照評接种孵育 (h 后 病毒滴度的对数值 (lgTCID <sub>30</sub> /瓶)	对照样接种孵育 2h 后 病毒滴度的对数值 (lgTCID <sub>20</sub> /瓶)	试样接种孵育 2h 后 病毒滴度的对数值 (lgTCID <sub>50</sub> /瓶)
甲型流感病毒 H3N2 宿主名称: MDCK 细胞	1	7.05	6.50	2.10
	2	6.97	6,63	2.30
	3	7,10	6.59	2.30
IgTCID <sub>10</sub> /版 平均数		7.04	6.57	2.33
抗病毒活性值		4.34		
抗病毒活性率(%)		99.99		





报告编号 (Report No.): 2020FM20686R0)

## 注意事项

## Notice Items

- 检测报告无本单位检验检测专用章、特性章无效。
   The Test report is invalid if not affixed with Authorized Stamp of Test and Paging Seal.
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  The Test report is invalid without signature of verifier and approver.
- 检测报告涂改增删无效。
   The Test report is invalid if being supplemented, deleted or altered.
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   Unless otherwise stated, the results shown in this test report refer only to the sample(s) submitted.
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  For the tested sample(s) submitted by the applicant, the sample information in the test report is provided by the applicant and the laboratory is not responsible for its authenticity.

