Disposable Protective Coverall

Cat No.	Basic W	eight	Color
VB-3550K	60 gr	um .	White
Size (in)	M	4	XL
	12	13	14
8	10	10.5	11
Θ	29	30	31
D	26	27	28
G	64	66	68
G	30	31	32
			100000

Main material	Treated Curie fabric
Usage	 PPE CATEGORY III unique Virus and Bacteria Killing properties provides maximum comfort and protection in high-risk areas where safety and flexibility is key provides general protection against water- based or chemical splashes, liquid or dust particles suitable for chemical and pharmaceutical industries, manufacturing, utilities, electronics
Properties	 Type 5 Particle protection Type 6 Limited splash protection Radioactive dust protection Anti-static



Disposable Protective Coverall

Curie Fabric

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

Breakthrough of Curie Fabric

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



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



Disposable Protective Coverall

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!



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

Nelson Labs. A Sotera Health company	Viral Filtration Efficiency (VFE) in ASTM F2101 Proven that Curie technology can effectively filter virus (>99.9a%) [p.7-8]
Nelson Labs. A Sotera Health company	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]
intertek Total Quality. Assured.	Viral Filtration Efficiency (VFE) in ASTM F2101 Proven that Curie technology can effectively filter virus (>99.9a%) [p.11-15]
香港公開大學 THE OPEN UNIVERSITY OF HONG KONG	Bacterial Filtration Efficiency (BFE) in ASTM F2101 Proven that Curie technology can effectively filter bacteria (>99%) [p.16-17]
香港公開大學 THE OPEN UNIVERSITY OF HONG KONG	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]
香港公開大學 THE OPEN UNIVERSITY OF HONG KONG	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]
「东省微生物分析检测中心 Guang Dong Detection Center Of Microbiology	Determination of Antiviral Activity of Textile Products BS ISO 18184 Proven that Curie technology can effectively kill virus (>99.99%) [p.22-25]

US Patent HK Patent 62988900 32020008506.8



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 Sitvie #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 Φ 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 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 cm ²
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 ³ PFU
Negative Monitor Count:	<1 PFU
MPS:	2.9 µm



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Study Number 1280865-S01 Viral Filtration Efficiency (VFE) Final Report

Results:

Test Article Number	Percent VFE (%)
1	>99.9*
2	>99.6*
3	>99.9*
4	>99.9*
5	>99.0 [#]

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

Curie



Bacterial Filtration Efficiency (BFE) Final Report

Test Article: Purchase Order Study Number	HKMSLMASK000 HKMSLPO20200326 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): Deviation(s):	Standard Test Protocol (STP) Number: None	STP0004 Rev 18

Summary: The BFE test is performed to determine the filtration efficiency of test articles by comparing the bacterial control 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 10³ colony forming units (CFU) with a mean particle size (MPS) of 3.0 ± 0.3 µm. The aerosols were drawn through a six-stage, viable particle, Andersen sampler for collection. This test method comples with ASTM F2101-19 and EN 14683 2019, Annex B, with the exception of the higher challenge level, which may represent a mote termine test.

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 ²
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 ³ CFU
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 10³ CFU." Testing with a more severe challenge to the test articles represents a worse case. The sponsor accepted the use of the higher challenge therefore, the results are considered valid at the testing conditions that occurred.



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Results:

Test Article Number	Percent BFE (%)
1	99.8
2	99.8
3	89.8
4	99.8
5	99.8

The filtration efficiency percentages were calculated using the following equation:

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

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

Curie



TEST REPORT

Applicant: CURIE LIMITED B3-1 G/F SUPERLUCK INDL CTR PHASE 2 57 SHA TSUI RD TSUEN WAN NT HK

Attn: ALDRIN OR

Sample Description As Declared : No. Of Sample : Several Buyer's Name 5.10 Agent's Name 11.5 Manufacturer's Name : Curie Limited Sample Description : Curie Ultrahigh-Efficiency Viral Filter Colour : White Style No. : 1001 Order No. / PO No. : -Product End Uses 2.0 Fibre Content : Nonwoven Fabric/GMT Weight : 20g Ref. 21 H Date Received/Date Test Started : Apr 15, 2020 Applicant's Provided Care Instruction/Label :

Number: HKGT05112613-51

Date: Apr 22, 2020 This is to supersede report no. HKGT05112613 dated Apr 21, 2020

Curie

For and on behalf of Intertek Testing Services Hong Kong Limited

Teddy Y. N. Chung Director

1

Page 1 Of 4



2/F Garment Centre 576 Castle Peak Road Kowloon, Hong Kong Tel +8%2 2178 8888 Fax +8%2 2786 1903 Intertek.com.hk



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

Curie

For and on behalf of Intertek Testing Services Hong Kong Limited

Teddy Y. N. Chung Director

Page 2 Of 4



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Number: HKGT05112613-51

TEST REPORT

Tests Conducted (As Requested By The Applicant)

Evaluation of Viral Filtration Efficiency (VFE):

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 Φ 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 $1.1 - 3.3 \times 10^3$ plaque forming units (PFU) with a mean particle size (MPS) of $3.0 \pm 0.3 \ \mu$ 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 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 10³ PFU

Negative Monitor Count: <1 PFU

MPS: 2.9 µm

Curie





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Number: HKGT05112613-51

TEST REPORT

Tests Conducted (As Requested By The Applicant)

Evaluation of Viral Filtration Efficiency (Cont'd)

Result:

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

* There were no detected plaques on any of the Anderson sampler plates for this test article.

The filtration efficiency percentages were calculated using the following equation:

$$\% VFE = \frac{C - T}{C} x100$$

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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To : CURIE LIMITED Attention : ALDRIN OR

Date : Apr 22, 2020

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.

Thank you for your attention

For and on behalf of Intertek Testing Services Hong Kong Limited

Teddy Y. N. Chung Director



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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 Report number: IRITS202005150001

Date: 15 May 2020

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



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Report number: IRITS202005150001

Date: 15 May 2020

Results:

Test Sample Number			
Test Sample Number	Bartenum Colonies Formed		
#1	N.D.ª		
#2	N.D. ^a		
Negative Control	N.D. ^a		
A Name Detected (N.D.) - There were no dete	cted bactarium colony of Stanbulococcus aureus		

^a None Detected (N.D.) – There were no detected bacterium colony of Staphylococcus aurcus found.

Sample Photo:



<End of Test Report>



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 Report number: IRITS2020007030001

Date: 3 July 2020

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 °C for 48 hours, followed by pre-conditioning at a minimum of 4 hour at 21 \pm 5 °C and relative humidity of 65 \pm 5 %. 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 °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.ª	> 99 %
Negative Control	N.D.*	N/A ^b

* None Detected (N.D.) – There were no detected bacterium colony of Staphylococcus aureus found

^b N/A – Not Applicable

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 Q₁₀ = 2.0.

Sample Photos:



<End of Test Report>



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 Report number: IRITS2020007130001R1

Date: 23 July 2020

Attn.: Aldrin Or

Sample Description as Declared:

 No. of Sample:
 ONE (1) piece of textile material in zipper bag packaging said to be RT-2007-89430-6:C029

 Colour:
 Witte

 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 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 ^a (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 1×10^6 CFU/ml to 3×10^6 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 IRIT52020007130001, which has been obsoleted.

<End of Test Report>





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广东省微生物分析检测中心

GUANGDONG DETECTION CENTER OF MICROBIOLOGY

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REPORT FOR ANALYSIS





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REPORT FOR ANALYSIS



报告编号 (Report №.) 2020FM20686R01 校验码 (Verification Code) 68295041

Name of Sample	Curie Ultrahigh-Efficiency Viral Filter for KV-99	检测类型 Tot Type	委托检测	
委托单位 Applicant	深圳市前海易赛高贸易有限公司	Address	深圳宝安西多银田工业区 B2 株 310 室	
科品未證 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 State and Characteristic	片状	
接样日期 Sample Received Date	2020-07-15	检测的2.0克日期 Completion Date	2020-07-28	
检测依据和方法 Test Standard and Mathod	ISO 18184(2014 (E)			
	抗病毒活性试验			
校測項目 hem Tested	11111	抗病毒活性试验	11111	
校測项目 hem Tosted 检测程论 Test Conclusion	该释品所检项目的实测数据见本的	此病毒活性试验 }潮报告续页。 鉴2 1888	E Mic. 3020-07-30	

Verifier

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Approves





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分析。

精用

广东省微生物分析检测中心

GEANGBONG DETECTION CENTER OF MICROBIOLOGY 分析检测结果

ANALYSIS AND TEST RESELT.

报告编号 (Report Nr.); 2020FM20686R01

	実验病毒 及宿主	実験 序号	对照样接种孵育 0a 后 病毒调度的对数值 (lgTCID_/度)	对照样接种孵育 2h 后 病毒滴度的对数值 (lgTCID ₃₀ /氪)	试样接种孵育 2h 后 病毒演变的对数值 (lgTCID _w /版)
1	田刑流咸病毒	1	7.05	6.50	2.10
	中型流感病毒 H3N2 宿主名称:	2	6.97	6.63	2.30
MDCK 细胞	3	7,10	6.59	2.30	
lgTCID,9/推 平均数 抗病毒活性值 抗病毒活性率 (%)		14	7.04	6.57	2.33
		t.	4.34		
		50			

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报告编号 (Report No.): 2020FM20686R01

注意事项

Notice Items

- 检测报告无本单位检验检测专用章、骑随章无效。
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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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Any dispute of the report must be raised to the testing body within 15 days after the report is received, exceeding which the dispute will sot be accepted.

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