Viral Filtration Efficiency (VFE) in ASTM F2101

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

Nelson Labs.
A Sotera Health company

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 10^3 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

Study Director James W. Luskin Study Completion Date 09 Apr 2020

1280865-S01

Results:

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

[a] 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:

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

C = Positive control average

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

Viral Filtration Efficiency (VFE) in ASTM F2101

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

intertek
Total Quality. Assured.

Number: HKGT05112613-S1

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

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超高效病毒濾材
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 :

-

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Number: HKGT05112613-S1

TEST REPORT

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

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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 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 10^3 plaque forming units (PFU) with a mean particle size (MPS) of 3.0 ± 0.3 μm. 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^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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Total Quality. Assured.

Number: HKGT05112613-S1

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[a]
2	>99.9[a]
3	>99.9[a]
4	>99.9[a]
5	>99.9[a]

[a] 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:

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

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

Determination of Antiviral Activity of Textile Products BS ISO 18184

Proven that Curie technology can effectively kill COVID-19 Coronavirus SARS-CoV-2 (>99.81%)

ATCCR

Report No: ATCCR20081010F

Test Report

Sample Category	Curie Ultrahigh-Efficiency Viral Filter for KV-99
Client	Curie Limited
Test Category	Test Entrust
Date of Report	2020.08.18

北京京畿分析测试中心有限公司

Analytical and Testing Center of Capital Regions

Report No: ATCCR20081010F

Detection Information

Client	Curie Limited		Sample Source	Inspect
Client address	Room C,23/F,Tsuen Tung Factory Building,38-40 Chai Wan KOK Street, Tsuen Wan,Hong Kong		Sample State	Normal
Date of Receives samples	2020.08.10		Date(s) of tests	2020.08.10-2020.08.18
Sample No	ATCCR20081010F-0810CP01			
Category	Test Project	Test Standard and Method		Test Instruments
Curie Ultrahigh-Efficiency Viral Filter for KV-99	Antiviral Activity Value (COVID-19)	ISO 18184:2019 Textiles Determination of antiviral		Biosafety Cabinet

End

Remarks	Production units: Curie Limited Trademarks: Curie Date of production: 2020.06.09 Sample model: Curie Ultrahigh-Efficiency Viral Filter for KV-99 Sample batch: 1001

Report Preparer: 刘畅

Report Reviewer:

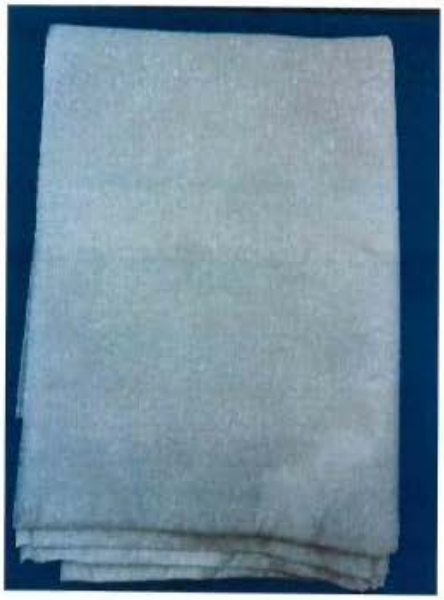
Authorized Signatory:

t Date of Issues Repor: 2020.08.18

(Special Chapter for Inspection and Inspection)

Test results

Virus Types	(NO)	lg(Va_{0h})（lgTCID$_{50}$/mL）	lg(Vb_{2h})（lgTCID$_{50}$/mL）	lg(Vc_{2h})（lgTCID$_{50}$/mL）
COVID-19 virus MDCK cells	1	6.73	6.68	3.7
	2	6.68	6.56	4
	3	6.7	6.57	3.9
Average Value of lgTCID$_{50}$/mL		6.70	6.61	3.88
Antiviral Activity Value		2.72		
Antiviral Activity Rate (%)		99.81		



End

Beijing Shantong Medical Testing Laboratory

Declaration of Test Results

Beijing Shantong Medical Testing Lab "BSMTL" hereby declares that the test item described below has been tested by BSMTL and complies with the requirements of

ISO 18184: 2019 Textile Determination of Antiviral

The complete detail of the tests performed and the results are recorded in
Report No: ATCCR20081010F Dated: 18.08.2020

Description of item tested: *Curie Ultrahigh-Efficiency Viral Filter for KV-99*

Virus Tested: SARS-COV-2 / COVID-19 MDCK Cells

Summary of test results -

Antiviral Activity Value: ***2.72***

Antiviral Activity Rate: ***99.81%***

Submitted by: *Curie Limited*
Room C, 23/F,Tsuen Tung Factory Building,38-40 Chai Wan Kok Street, Tsuen Wan, Hong Kong SAR

Declaration authorised by:

Name: 赵志刚

Title: 实验室负责人

Date: 02/09/2020

北京普通医学检验实验室有限公司 1101081423656

Attention is drawn to the conditions upon which this declaration is issued, namely:

1. *This declaration does not indicate provide or imply any measure of Approval, Certification, Supervision, Control or Surveillance by BSMTL to this or any related product.*
2. *This Declaration applied only to the particular sample tested and to the specific tests carried out as detailed in the Report referred to above.*
3. *The general and specific conditions of the BSMTL Conditions of Contract for Testing, apply in all respects.*

统一社会信用代码

91110111MA01A4KK4D

营业执照

(副 本) (1-1)

扫描二维码登录"国家企业信用信息公示系统"了解更多登记、备案、许可、监管信息

名　　称　北京普通医学检验实验室有限公司

类　　型　有限责任公司(法人独资)

法定代表人　杨益

经营范围　医学检验医疗服务；技术开发、技术转让、技术咨询、技术服务。（企业依法自主选择经营项目，开展经营活动；医疗服务以及依法须经批准的项目，经相关部门批准后依批准的内容开展经营活动；不得从事本市产业政策禁止和限制类项目的经营活动。）

注册资本　600万元

成立日期　2018年01月24日

营业期限　2018年01月24日 至 2048年01月23日

住　　所　北京市房山区拱辰街道办事处学园北街11号综合服务楼一层5106

登记机关　北京市工商行政管理局房山分局

2019年 05月 28日

国家企业信用信息公示系统网址：http://www.gsxt.gov.cn

市场主体应当于每年1月1日至6月30日通过国家企业信用信息公示系统报送公示年度报告。

国家市场监督管理总局监制

北京市卫生健康委员会

北京市卫生健康委员会关于同意密云区医院等11家检测机构开展新型冠状病毒核酸检测的通知

西城区、朝阳区、丰台区、房山区、顺义区、大兴区、密云区卫生健康委，经济开发区，市疾控中心，市医学检验质控中心，各相关医疗机构：

根据北京市密云区医院、北京市西城区展览路医院、北京市丰台区铁营医院、北京市朝阳区三环肿瘤医院、北京朝阳急诊抢救中心、北京朝阳中西医结合急诊抢救中心、北京市大兴区中西医结合医院、北京北亚骨科医院、北京德威铭达医学检验所、北京善通医学检验实验室和北京索真医学检验实验室等11家检测机构（以下简称11家检测机构）提交的开展新冠病毒核酸检测的申请，结合专家评估意见，经研究，现就有关事项通知如下：

一、同意11家检测机构开展新型冠状病毒核酸检测工作。

二、11家检测机构要严格按照国家和本市关于开展新型冠状病毒核酸检测、生物安全防护、生物样本资源管理的有

北京市病原微生物实验室及实验室活动备案通知书

京房山卫实验室备字[2020]第043号

北京善通医学检验实验室有限公司 ：

你单位于2020年06月27日提交的北京市病原微生物实验室及实验活动备案材料如下：

1. ☑《北京市病原微生物实验室及实验室活动备案表》；

2. ☑ 实验室或实验室设立单位的法人资格证明；

3. ☑ 实验室设立单位生物安全组织管理框架图；

4. ☑ 实验室布局平面图；

经本机关审查，认为申请材料齐全、符合《北京市病原微生物实验室及实验活动备案管理办法》的要求，决定予以备案。

卫生健康行政部门（印章）

2020年06月27日

备注：此备案旨在了解你单位实验室及其实验活动基本状况，不作为审批依据。请你单位备案后，严格按照《中华人民共和国传染病法》、《病原微生物实验室生物安全管理条例》和《人间传染的高致病性病原微生物实验室和实验活动生物安全审批管理办法》等相关法律法规规定，从事相关实验活动，规范实验室管理。

北京市卫生健康委员会制定

广微测 Gmicro Testing

中国认可 国际互认 检测 TESTING CNAS L1747

GUANGDONG DETECTION CENTER OF MICROBIOLOGY

REPORT FOR ANALYSIS

Report №.	2020FM20686R01E
Name of Sample	Curie Ultrahigh-Efficiency Viral Filter for KV-99
Applicant	Shenzhen Qianhai e-Cycle Trading Co.,Ltd.
Test Type	Entrustment Test

Address: Building 66, No.100 Central Xian Lie Road, Guangzhou, China
Postcode: 510070
Tel: +86 20 87137666
Fax : +86 20 87137668
Website : www.gddcm.com

广微测 Gmicro Testing

中国认可 国际互认 检测 TESTING CNAS L1747

GUANGDONG DETECTION CENTER OF MICROBIOLOGY

REPORT FOR ANALYSIS

Report №.:2020FM20686R01E Verification Code: 03658924

Name of Sample	Curie Ultrahigh-Efficiency Viral Filter for KV-99	Test Type	Entrustment Test
Applicant	Shenzhen Qianhai e-Cycle Trading Co.,Ltd.	Address	2/F,Building B2，Yintian Industrial Area，Xixiang Street，Baoan District，Shenzhen Guangdong，China
Sample Source	Submitted for Testing by the Applicant	Sample Quantity	260cm*2m
Spec and Lot № of Sample	40g;1001	State and Characteristic	Flaky
Sample Received Date	2020-07-15	Test Completion Date	2020-07-28
Test Standard and Method	ISO 18184：2014（E）		
Item Tested	Antiviral activity test		
Test Conclusion	The test data of the sample(s) is attached to the page(s) of this report. Issue Date：2020-08-13 (Official Seal)		
Remarks	1.Manufacturer: Curie Limited. (provided by the applicant) 2.Trademark: Curie; The date of production: 2020-06-01. (provided by the applicant)		

Editor: Chen Yingying **Verifier:** Li Suyuan **Approver:** Xie Xiaobao

GUANGDONG DETECTION CENTER OF MICROBIOLOGY

ANALYSIS AND TEST RESULT

Report №.: 2020FM20686R01E

Virus and host cell	No.	The logarithm of infectivity titre value immediate after inoculation of the reference specimen ($lgTCID_{50}$/bottle)	The logarithm of infectivity titre value after 2h contacting with the reference specimen ($lgTCID_{50}$/ bottle)	The logarithm of infectivity titre value after 2h contacting with the test specimen ($lgTCID_{50}$/ bottle)
H3N2 *Influenza A virus* Host cell: MDCK	1	7.05	6.50	2.10
	2	6.97	6.63	2.30
	3	7.10	6.59	2.30
$lgTCID_{50}$/ bottle Average		7.04	6.57	2.33
Logarithm of antiviral activity		4.34		
Antiviral activity rate（%）		99.99		

（Blank below）

Report №.: 2020FM20686R01E

Notice Items

1. The Test report is invalid if not affixed with Authorized Stamp of Test and Paging Seal.
2. The Test report is invalid without signature of verifier and approver.
3. The Test report is invalid if being supplemented, deleted or altered.
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5. Unless otherwise stated, the results shown in this test report refer only to the sample(s) submitted.
6. 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 not be accepted。
7. 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.