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使用原料—JM-TTA01奈米新型複合材料
超過10年研發能量，用數據說真話

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- 2014年取得全球病毒實驗室 **美國Microbac** **液態抗病毒檢測**報告書
- 檢測規範ASTM E1052

MICROBAC®

- 2014年取得**美國FDA**(食品藥物管理局)字號：3010700940
- Proprietary Name: **Antiviral**

FDA U.S. FOOD & DRUG ADMINISTRATION

使用原料—JM-TTA01奈米新型複合材料
超過10年研發能量，用數據說真話

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- 安全性測試報告 20 張
- 美國&各國專利 20 張
- 抗菌測試檢測報告 24 張
- 國際ISO抗病毒全球紡織品 及 平面製品檢測報告 48 張
- 其他材料報告 共 28 張
- 產品結合抗菌報告 25 張

JM-TTA01 抗病毒測試報告

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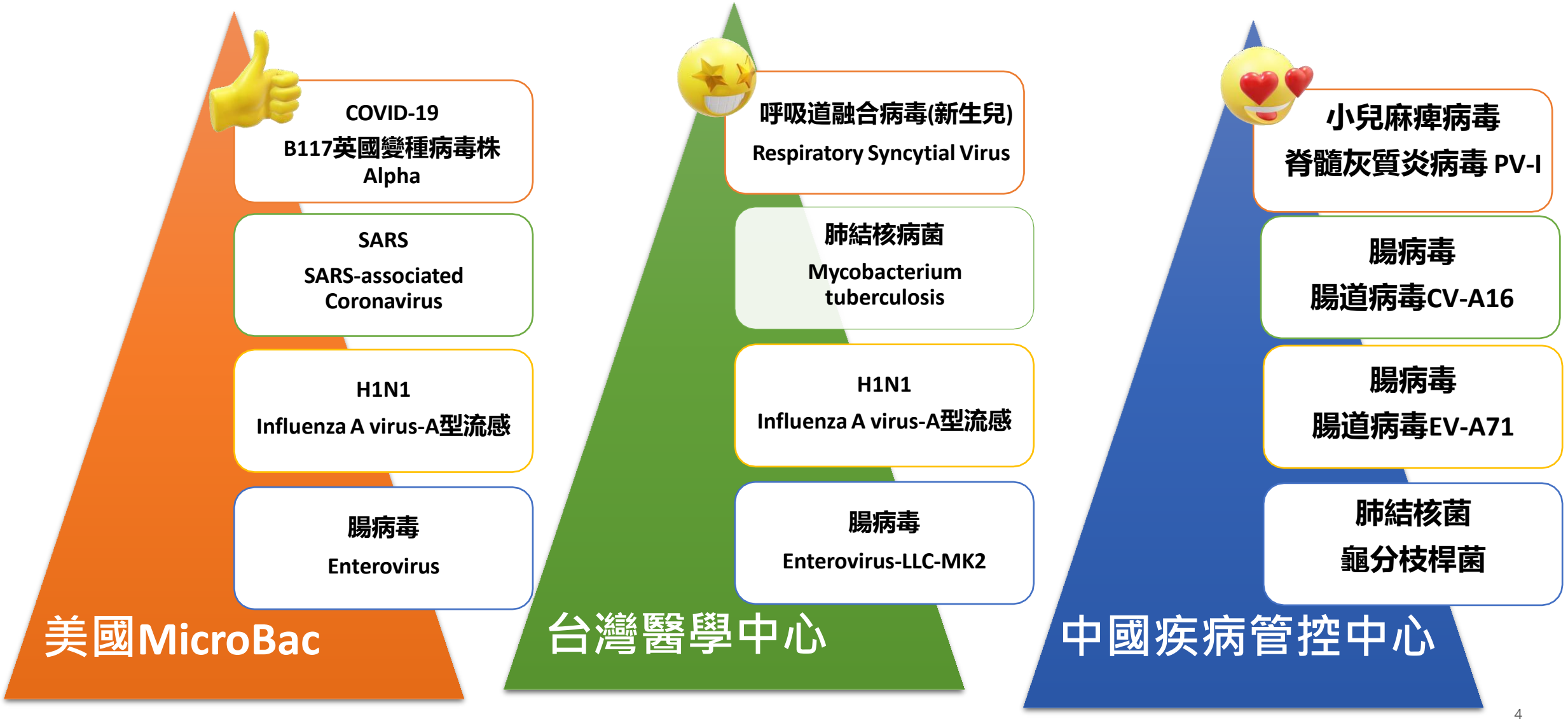

JM-TTA01 人體細胞安全性測試報告

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美國FDA

- 認證字號 3010700940

台灣醫學中心

- 人體纖維母細胞(幹細胞毒性測試)成人試驗報告

台美檢驗

- 皮膚毒性測試

成大微奈米科技研究中心

- 口服毒性

中國疾病預防控制中心

- 皮膚毒性
- 口服毒性

SGS

- RoHS檢驗
- 皮膚刺激性測試報告
- 急性口服測試報告

JM-TTA01 抗菌測試報告

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中國(山東)疾病管控中心

- 龜分枝桿菌(肺結核菌)
- 金黃色葡萄球菌
- 大腸桿菌

中國科學院理化技術研究中心

- Escherichia coil-大腸桿菌
- Staphylococcus aureus-金黃色葡萄球菌

廣州工業微生物檢測中心

- 肺炎鏈球及綠膿桿菌及MRSA(金黃葡萄球菌ATCC)抗菌報告

食品工業研究所

- MRSA(金黃葡萄球菌ATCC)
- 奇異變形桿菌
- 抗肺炎鏈球菌
- Escherichia coil-大腸桿菌
- Staphylococcus aureus-金黃色葡萄球菌
- Legionella pneumopila-退伍軍人菌

SGS

- Pseudomonas aeruglnosa-綠膿桿菌
- Salmonella enterica-腸道沙門氏菌
- Escherichia coli-大腸桿菌
- Staphylococcus aureus-金黃色葡萄球菌
- Candida albicans-白色念珠菌
- 黴菌測試—黑麴菌、四松青黴菌、球毛殺菌、綠黏掃黴菌、出芽短梗黴菌

JM-TTA01取得美國FDA(食品藥物管理局)安全認證

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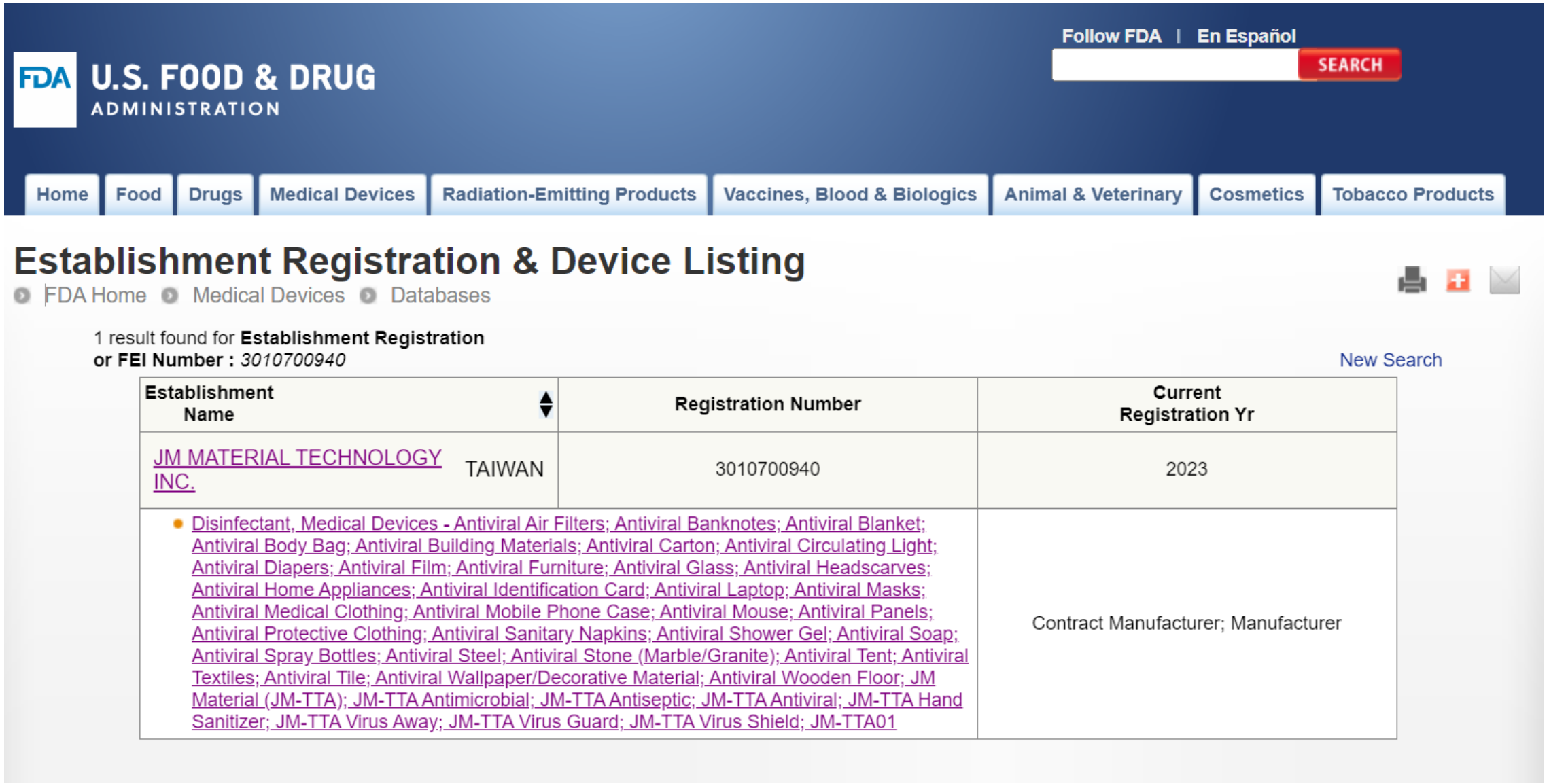

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1 result found for **Establishment Registration**
or FEI Number : *3010700940*

New Search

Establishment Name	Registration Number	Current Registration Yr
JM MATERIAL TECHNOLOGY INC. TAIWAN	3010700940	2023
• Disinfectant, Medical Devices - Antiviral Air Filters; Antiviral Banknotes; Antiviral Blanket; Antiviral Body Bag; Antiviral Building Materials; Antiviral Carton; Antiviral Circulating Light; Antiviral Diapers; Antiviral Film; Antiviral Furniture; Antiviral Glass; Antiviral Headscarves; Antiviral Home Appliances; Antiviral Identification Card; Antiviral Laptop; Antiviral Masks; Antiviral Medical Clothing; Antiviral Mobile Phone Case; Antiviral Mouse; Antiviral Panels; Antiviral Protective Clothing; Antiviral Sanitary Napkins; Antiviral Shower Gel; Antiviral Soap; Antiviral Spray Bottles; Antiviral Steel; Antiviral Stone (Marble/Granite); Antiviral Tent; Antiviral Textiles; Antiviral Tile; Antiviral Wallpaper/Decorative Material; Antiviral Wooden Floor; JM Material (JM-TTA); JM-TTA Antimicrobial; JM-TTA Antiseptic; JM-TTA Antiviral; JM-TTA Hand Sanitizer; JM-TTA Virus Away; JM-TTA Virus Guard; JM-TTA Virus Shield; JM-TTA01		Contract Manufacturer; Manufacturer

JM-TTA01取得美國FDA(食品藥物管理局)安全認證

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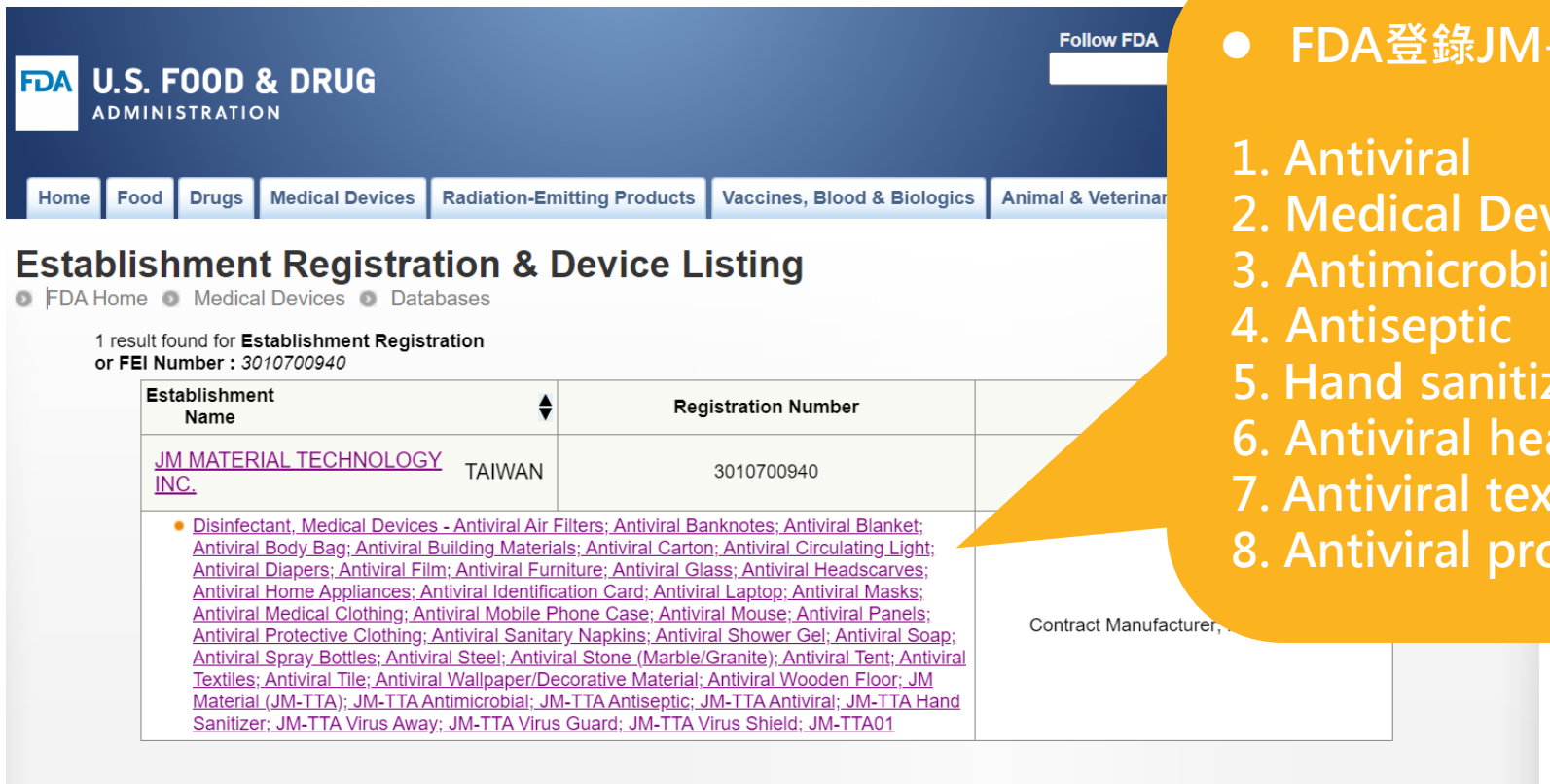
FDA 註 冊 登 錄

Registration No. : 3010700940

Proprietary Name: **Antiviral**

Classification Name: DISINFECTANT, MEDICAL DEVICES



- **FDA登錄JM-TTA01可應用於：**

1. Antiviral -- 抗病毒
2. Medical Device – 醫療器材
3. Antimicrobial -- 抗菌/微生物
4. Antiseptic -- 抗菌 維持無菌(長效型)
5. Hand sanitizer -- 手部防禦
6. Antiviral headscarves --抗病毒頭巾
7. Antiviral textile -- 抗病毒紡織品
8. Antiviral protective clothing -- 抗病毒防護衣

JM-TTA01經美國MicroBac實驗室測試
有效去除 COVID-19_B.1.1.7 英國變種病毒 (99.9%)

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FINAL REPORT

VIRUCIDAL EFFICACY SUSPENSION TEST – SARS-associated Coronavirus 2 (SARS-CoV-2) (COVID-19 Virus), UK Variant (B.1.1.7)

Test Substance
Nanocomposite Material (JM-TTA01)

Lot Number
N/A

Test Organism
SARS-associated Coronavirus 2 (SARS-CoV-2) (COVID-19 Virus), UK Variant (B.1.1.7)

Author
Cameron Wilde

Study Completion Date
09/07/21

Performing Laboratory
Microbac Laboratories, Inc.
105 Carpenter Drive
Sterling, VA 20164, USA

Laboratory Project Identification Number
852-104

Protocol Identification Number
852.V.21.001

Sponsor
JM Material Technology Inc.
O. 5F.-3, No. 40-2, Sec. 1, Minsheng N. Rd.
Guishan Township, Taoyuan County 333
Taiwan (R.O.C.)

RESULTS

Results are presented in Tables 1– 3.

The Viral Load was determined in the following manner:

Viral Load (Log_{10} $TCID_{50}$) = Titer (Log_{10} $TCID_{50}$/mL) + Log_{10} [Volume (mL) x Volume Correction] (e.g., neutralization)

Note: The volume (mL) of the Undiluted (10^0) sample was used in the above equation.

The Log_{10} Reduction Factor (LRF) was calculated in the following manner:

LRF = Initial Viral Load (Log_{10} $TCID_{50}$) – Output Viral Load (Log_{10} $TCID_{50}$)

Table 1
Titer Results

Sample	Contact Time	Replicate	Titer (Log_{10} $TCID_{50}$/mL)	Volume (mL)	Volume Correction *	Viral Load (Log_{10} $TCID_{50}$)
Virus Stock Titer Control	N/A	N/A	6.80	-	-	-
Cell Viability Control			no virus was detected, cells remained viable; media was sterile			
Virus Recovery Control	20 minutes	Rep 1	5.93	3		
Nanocomposite Material (JM-TTA01)	20 minutes	Rep 1	≤ 2.80 *	3		

* Volume correction accounts for the neutralization of the sample post contact time.
* No virus was detected, the theoretical titer was determined based on the Spearman-Karber formula

Table 2
Neutralizer Effectiveness / Viral Interference (NE/VI) and Cytotoxicity (CT) Controls

Dilution*	Nanocomposite Material (JM-TTA01)	
	NE/VI	CT
10^0	Cytotoxicity observed in all inoculated wells	Cytotoxicity observed in all inoculated wells
10^{-1}	virus detected in all inoculated wells	no virus detected in all inoculated wells
10^{-2}	virus detected in all inoculated wells	no virus detected in all inoculated wells

* Dilution refers to the fold of the dilution from the neutralized sample.

人體纖維細胞
安全無毒報告

RESULTS

Table 3
Reduction Factors

Test Substance	Contact Time	Replicate	Initial Load (Log_{10} $TCID_{50}$)*	Output Load (Log_{10} $TCID_{50}$)	Log_{10} Reduction
Nanocomposite Material (JM-TTA01)	20 minutes	Rep 1	6.71	≤ 3.58	≥ 3.13

Note: "≥" refers to a complete inactivation of virus

CONCLUSIONS

When tested as described, Nanocomposite Material (JM-TTA01) was evaluated for its ability to inactivate SARS-associated Coronavirus 2 (SARS-CoV-2) (COVID-19 Virus), UK Variant (B.1.1.7). The results are presented in Tables 1 – 3.

All of the controls met the criteria for a valid test. These conclusions are based on observed data.

檢測R值3.13
有效去除Covid-19_B.1.1.7
英國變種病毒(99.9%)

JM-TTA01經美國MicroBac實驗室測試
有效去除 SARS 冠狀病毒 (99.9%)

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FINAL REPORT

VIRUCIDAL EFFICACY SUSPENSION TEST – SARS-associated Coronavirus (SARS-CoV)

Test Substance
Nanocomposite Material (JM-TTA01)

Lot Number
N/A

Test Organism
SARS-associated Coronavirus, Strain: CDC 200300592, source: ZeptoMetrix/CDC

Author
Cameron Wilde

Study Completion Date
05/06/2020

Performing Laboratory
Microbac Laboratories, Inc.
105 Carpenter Drive
Sterling, VA 20164, USA

Laboratory Project Identification Number
852-103

Protocol Identification Number
852.1a.03.16.20

Sponsor
JM Material Technology Inc.
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Page 1 of 13

人體纖維細胞
安全無毒報告

Final Report VIRUCIDAL EFFICACY SUSPENSION TEST - SARS-associated Coronavirus (SARS-CoV)

RESULTS (continued)

Table 2
Neutralizer Effectiveness/Viral Interference (NE/VI) and Cytotoxicity (CT) Controls

Dilution*	NE/VI	CT
10^{-1}	Cytotoxicity observed in all inoculated wells	Cytotoxicity observed in all inoculated wells
10^{-2}	Cytotoxicity observed in all inoculated wells	Cytotoxicity observed in all inoculated wells
10^{-3}	Virus detected in all inoculated wells	no virus detected in all inoculated wells

* Dilution refers to the fold of the dilution from the neutralized sample.

Table 3
Viral Reduction

Test Substance	Contact Time	Replicate	Initial Load ($Log_{10}TCID_{50}$)*	Output Load ($Log_{10}TCID_{50}$)	Log_{10} Reduction
Nanocomposite Material (JM-TTA01)	20 minutes	Rep 1	7.28	≤ 3.61	≥ 3.67

CONCLUSIONS

When tested as described, Nanocomposit… its ability to inactivate SARS-associated Coro… 1 – 3.

All of the controls met the criteria for a … on observed data.

檢測R值3.67
有效去除SARS
冠狀病毒(99.9%)

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JM-TTA01經美國MicroBac實驗室測試
有效去除 H1N1 (99.9%)

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MICROBAC® MicroBioTest Division

FINAL REPORT

VIRUCIDAL SUSPENSION EFFICACY TEST
Influenza A Virus (H1N1)

TEST AGENT
Nanocomposite Material

Author
Zheng Chen, M.S.

Performing Laboratory
MicroBioTest
Division of Microbac Laboratories, Inc.

105 Carpenter Drive
Sterling, Virginia 20164

Laboratory Project Identification Number
852-101

Sponsor
JM Material Technology Inc
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Guishan Township,Taoyuan County 333
Taiwan (R.O.C.)

Page 1 of 9

RESULTS (continued)

Table 2
Neutralizer Effectiveness/Viral Interference and Cyto

Dilution of the Neutralized Sample	Neutralizer Effectiveness/Viral Interference Control (with UV-A) *	
10^-1	virus detected in 4 out of 4 wells	no cytotoxicity observed
10^-2	virus detected in 4 out of 4 wells	no cytotoxicity observed
10^-3	virus detected in 4 out of 4 wells	no cytotoxicity observed

* Sample was processed by Sephacryl column.

人體纖維細胞
安全無毒報告

Table 3
Reduction Factor

Test Agent	Contact Time	Initial Viral Load ($Log_{10}TCID_{50}$)	Output Viral Load ($Log_{10}TCID_{50}$)	Log_{10} Reduction	Percent Reduction (%)
Nanocomposite Material	20 minutes	5.78	≤ 1.61	≥ 4.17	≥ 99.99

CONCLUSIONS

MicroBioTest personnel performed the ina s to spike the test agent solution. Samples were take infectious dose ($TCID_{50}$) endpoint assay using LLC-M

Table 3 reports the individual Log_{10} virus treatment procedure. All of the controls met the crit ions were based on observed data.

檢測R值4.17
有效去除H1N1
(99.9%)

JM-TTA01經美國MicroBac實驗室測試
有效去除 腸病毒 (99.9%)

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MICROBAC® MicroBioTest Division

FINAL REPORT

VIRUCIDAL SUSPENSION EFFICACY TEST
Enterovirus

TEST AGENT
Nanocomposite Material

Author
Zheng Chen, M.S.

Performing Laboratory
MicroBioTest
Division of Microbac Laboratories, Inc.
105 Carpenter Drive
Sterling, Virginia 20164

Laboratory Project Identification Number
852-102

Sponsor
JM Material Technology Inc
O. 5F.-3, No. 40-2, Sec. 1, Minsheng N. Rd.
Guishan Township,Taoyuan County 333
Taiwan (R.O.C.)

Page 1 of 9

RESULTS (continued)

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* Sample was processed by Sephacryl column.

人體纖維細胞
安全無毒報告

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dose ($TCID_{50}$) endpoint assay using LLC-M…

Table 3 reports the individual Log_{10} virus … atment
procedure. All of the controls met the crite… s were
based on observed data.

檢測R值4.17
有效去除腸病毒
(99.9%)

中國 疾病管控中心 抗病毒檢測報告

CMA 160000102397 CNAS 中国认可 检测 TESTING CNASL0119

山东省卫生厅认定
消毒产品检验机构
（认定日期：2002年10月31日）

山东省疾病预防控制中心

检 验 报 告

检验报告编号 鲁疾控检字2016X00156号

检 品 名 称 TTA-纳米新型复合材料

客 户 名 称 京程科技股份有限公司

2018年02月06日

脊髓灰質炎(小兒麻痺)抑制能力平均達91.61%

腸道病毒-手足口病毒(EV-A71)抑制能力達93.92%

腸道病毒-手足口病毒(CV-A16)抑制能力達91.08%

三、结果

所试 TTA-纳米新型复合材料 6.25%稀释液，室温条件下用 UVA 灯源照射 1h，对所试病毒抑制百分比均>90%。

试验序号	脊髓灰质炎病毒 PV-1	肠道病毒 EV-A71	肠道病毒 CV-A16
1	92.06	95.32	93.24
2	91.09	92.06	90.00
3	91.68	94.38	90.00

注：(1)所试脊髓灰质炎病毒 PV-1 阳性对照 $TCID_{50}$ 对数值范围是(5.33～6.50)；

(2)所试肠道病毒 EV-A71 阳性对照 $TCID_{50}$ 对数值范围是(5.33～5.77)；

(3)所试肠道病毒 CV-A16 阳性对照 $TCID_{50}$ 对数值范围是(4.67～6.50)；

(4)检品毒性测试组、阴性对照组细胞生长良好。

四、结论

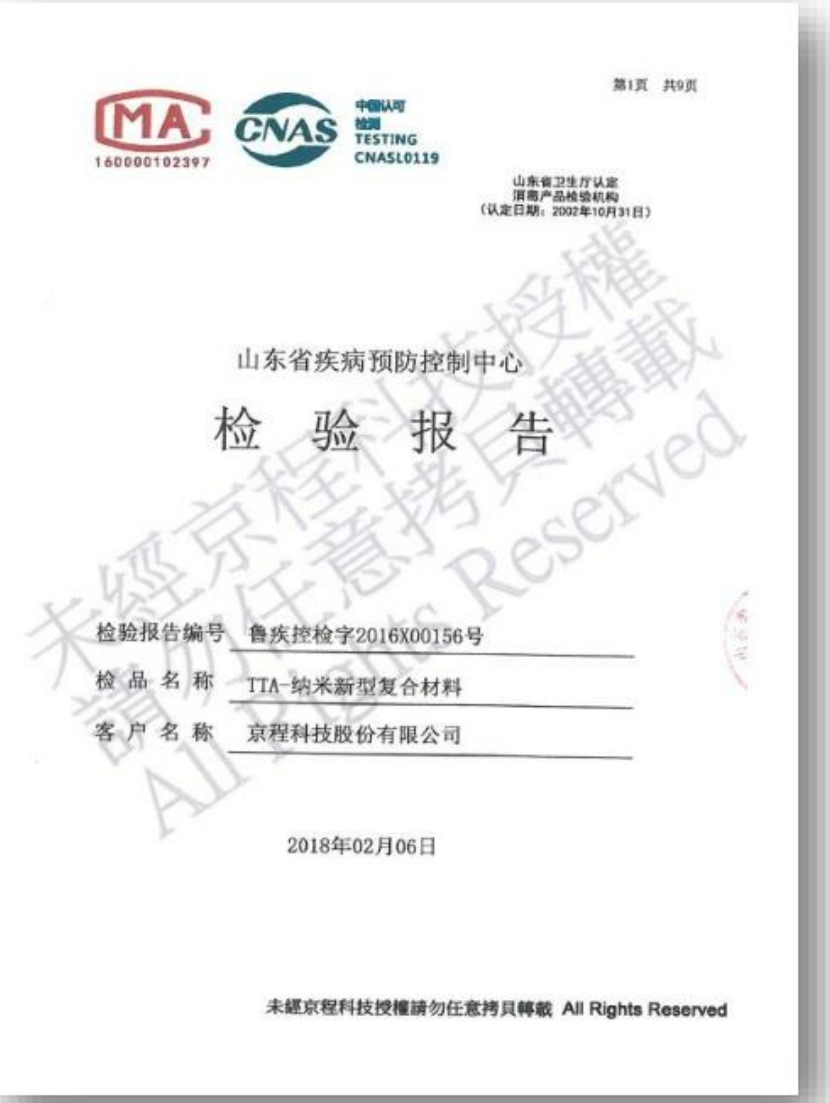
所试 TTA-纳米新型复合材料 6.25%稀释液，室温条件下用 UVA 灯源照射 1h，对所试脊髓灰质炎病毒 PV-1、肠道病毒 EV-A71、肠道病毒 CV-A16 抑制百分比均>90%。

以下空白

人體細胞無毒安全報告

法定代表人（或授权的技术负责人）（签字） 2018 年 1 月 18 日 检验机构盖章

中國 疾病管控中心 抗病毒檢測報告



第1页 共9页

CMA 160000102397 CNAS 中国认可 检测 TESTING CNASL0119

山东省卫生厅认定
消毒产品检验机构
（认定日期：2002年10月31日）

山东省疾病预防控制中心

检 验 报 告

检验报告编号 鲁疾控检字2016X00156号

检 品 名 称 TTA-纳米新型复合材料

客 户 名 称 京程科技股份有限公司

2018年02月06日

第4页 共9页

检品受理编号：2016X00156

表 对大肠杆菌和金黄色葡萄球菌抗菌效果

试验序号	大肠杆菌抗菌率（%）	金黄色葡萄球菌抗菌率（%）
1	100	100
2	100	100
3	100	100
平均值	100	100

注：（1）大肠杆菌阳性对照组平均菌落数及范围 2.39×10⁷（1.98×10⁷—4.20×10⁷）cfu/片。
（2）金黄色葡萄球菌阳性对照组平均菌落数及范围 3.60×10⁷（3.00×10⁷—4.60×10⁷）cfu/片。
（3）阴性对照无菌生长。

四、结论

所试 TTA-纳米新型复合材料制成的试验样片，室温条件下用日光灯照射作用24h，对大肠杆菌和金黄色葡萄球菌平均抗菌率均为100%。

以下空白

大腸桿菌
抗菌率100%

金黃色葡萄球菌
抗菌率100%

法定代表人（或授权的技术负责人）（签字） 2018年1月18日 检验机构盖章

第6页 共9页

检品受理编号：2016X00156

表 对龟分枝杆菌的抗效果

试验序号	作用24h的抗菌率（%）
1	93.85
2	97.36
3	93.74
平均值	94.98

注：阳性对照组平均菌落数及范围 [illegible] cfu/片；阴性对照无菌生长。

四、结论

所试TTA-纳米新型复合材料制备的试验样片，室温条件下用日光灯照射作用24h，对龟分枝杆菌平均抗菌率为94.98%。

以下空白

龜分枝杆菌
(肺結核桿菌型)
抗菌率94.98%

法定代表人（或授权的技术负责人）（签字） 2018年1月18日 检验机构盖章

醫學研究中心 研究報告
有效去除 RSV呼吸道融合病毒(90.00%)

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JM 奈米新型複合材料抑制呼吸道融合病毒感染細胞
能力之測試結果報告

測試試劑

JM 奈米新型複合材料

計畫委託

京程科技股份有限公司

計畫執行單位

醫學研究部臨床醫學研究中心細胞生物研究室

測試實驗室

汐止國泰綜合醫院病毒實驗室

執行人員

蔡承遠，朱彩雲，凌慶東

計畫主持人

凌慶東

簽名：

測試結果

呼吸道融合病毒

Group	Viral load ($Log_{10}TCID_{50}$)		
	1st	2nd	3rd
病毒株	3.0	4.5	4.7
病毒株+JM	2.5	4.0	3.7
細胞株	None	None	None
細胞株+JM	None	None	None

計算抑制病毒效能：

以第三次實驗結果值帶入計算：

呼吸道融合病毒抑菌百分比=[1-10^(-（4.7－3.7）)]x100=**90.00**

結論

本次實驗結果顯示，0.625%濃度的 JM 材料具有抑制呼吸道融合病毒感染細胞之能力，經計算抑制能力可達 **90.00%**。

有效去除
RSV呼吸道融合病毒
(90.00%)

結論

(1) JM 材料作用於人類皮膚纖維母細胞 24 小時，含 10% 濃度經 UV 照射之培養液，及含 5%以上濃度之 JM 材料無 UV 照射之培養液均會造成細胞毒性反應。

(2) 含 2.5% 以下濃度 JM 材料經 UV 照射或無 UV 照射之培養液培養之細胞均未呈現毒性反應。

(3) 細胞長期毒性試驗中，含 0.625% 濃度（推估為使用濃度）JM 材料經 UV 照射或無 UV 照射之培養液培養細胞 5 日之人類皮膚纖維母細胞未呈現細胞毒性反應及對細胞生長和增殖的影響。

人體纖維細胞無毒安全報告

醫學研究中心 研究報告

JM奈米新型複合材料抑制腸病毒懸浮液感染細胞能力之測試結果報告

測試試劑

JM奈米新型複合材料

計畫委託

京程科技股份有限公司

計畫執行單位

醫學研究部臨床醫學研究中心細胞生物研究室

測試實驗室

汐止國泰綜合醫院病毒實驗室

執行人員

蔡承遠，朱彩雲，凌慶東

計畫主持人

凌慶東

簽名：2014-03-06

1

5. 計算抑制能力：

抑制病毒量=接種病毒量-加入JM後感染細胞病毒量=2×10^6 PFU/mL-20 PFU/mL=1999980 PFU/mL

抑制能力=抑制病毒量÷接種病毒量=1999980 PFU/mL÷2×10^6 PFU/mL =99.999%

結論

1. 本次實驗中顯示，2.5%濃度以上JM對LLC-MK2細胞株具有細胞毒性。
2. 本次實驗中顯示，0.625%濃度的JM材料具有抑制腸病毒感染細胞之能力。經計算抑制能力約為**99.99%**。

有效去除EV-11型
(腸病毒伊科十一型99.99%)

結論

(1) JM材料作用於人類皮膚纖維母細胞24小時，含10%濃度經UV照射之培養液，及含5%以上濃度之JM材料無UV照射之培養液均會造成細胞毒性反應。

(2) 含2.5%以下濃度JM材料經UV照射或無UV照射之培養液培養之細胞均**未呈現毒性反應**。

(3) 細胞長期毒性試驗中，含0.625%濃度（推估為使用濃度）JM材料經UV照射或無UV照射之培養液培養細胞5日之人類皮膚纖維母細胞**未呈現細胞毒性反應及對細胞生長和增殖的影響**。

人體纖維細胞無毒安全報告

醫學研究中心 研究報告

生機生技 生機無限
lifenergy bio
the immune health company

JM 奈米新型複合材料抑制 A 型流行性感冒病毒
(H1N1)病毒懸浮液感染細胞能力之測試結果報告

測試試劑

JM 奈米新型複合材料

計畫委託

京程科技股份有限公司

計畫執行單位

醫學研究部臨床醫學研究中心細胞生物研究室

測試實驗室

汐止國泰綜合醫院病毒實驗室

執行人員

蔡承遠，朱彩雲，凌慶東

計畫主持人

凌慶東

簽名：2014-03-06

測試結果

A 型流行性感冒病毒

Group	Viral load ($Log_{10}TCID_{50}$)		
	1st	2nd	3rd
病毒株	4.0	5.7	5.7
病毒株+JM	2.5	3.2	4.0
細胞株	None	None	None
細胞株+JM	None	None	None

計算抑制病毒效能：

以三次實驗結果平均值帶入計算：

流感病毒抑菌百分比=[1-10^(-（5.1－3.2）)]x100=**98.74**

結論

本次實驗結果顯示，0.625%濃度的 JM 材料具有抑制 A 型流行性感冒病毒感染細胞之能力。經計算抑制能力約為 **98.74%**。

有效去除H1N1
(A型流感病毒98.76%)

結論

(1) JM 材料作用於人類皮膚纖維母細胞 24 小時，含 10% 濃度經 UV 照射之培養液，及含 5%以上濃度之 JM 材料無 UV 照射之培養液均會造成細胞毒性反應。

(2) 含 2.5% 以下濃度 JM 材料經 UV 照射或無 UV 照射之培養液培養之細胞均**未呈現毒性反應**。

(3) 細胞長期毒性試驗中，含 0.625% 濃度（推估為使用濃度）JM 材料經 UV 照射或無 UV 照射之培養液培養細胞 5 日之人類皮膚纖維母細胞**未呈現細胞毒性反應及對細胞生長和增殖的影響**。

人體纖維細胞無毒安全報告

醫學研究中心 研究報告

生機生技 生機無限
lifenergy bio
the immune health company

JM 奈米新型複合材料抑制結核菌能力測試結果報告

測試試劑

JM 奈米新型複合材料

計畫委託

京程科技股份有限公司

計畫執行單位

醫學研究部臨床醫學研究中心細胞生物研究室

測試實驗室

彰止國泰綜合醫院結核菌實驗室

執行人員

蔡承遠，陳麗秋，凌慶東

計畫主持人

凌慶東

簽名：凌慶東

乙、隨機計數六個區域的結果如下表。

濃度	對照組	實驗組	抑菌效能
原倍	>1000/cm²	>1000/cm²	無法計算
稀釋 10 倍	>1000/cm²	>1000/cm²	無法計算
稀釋 10^2 倍	>1000/cm²	>1000/cm²	無法計算
稀釋 10^3 倍	105.3/cm²	62.7/cm²	40.5%
稀釋 10^4 倍	19.8/cm²	7.7/cm²	61.1%
稀釋 10^5 倍	2.6/cm²	0.5/cm²	80.8%

丙、抑制結核菌效能：由稀釋 10^5 倍實驗(最佳)結果帶入計算得出 80.8%。

結論

本次實驗中顯示，當結核菌稀釋 10^5 倍時 JM 對結核菌具有抑制之能力。經計算抑制能力可達 80.8%。

抑制結核菌效果 (80.8%)

中國科學院 抗菌報告

中国科学院理化技术研究所抗菌材料检测中心

Test Center of Antimicrobial Materials
Technical Institute of Physics and Chemistry, Chinese Academy of Sciences

检 测 报 告

Test Report

报 告 编 号：LIHKJ-1803-09-1/1
Report Number

样品名称 Sample Name	JM-TTA01
委托单位 Sample Clients	京程科技股份有限公司
检测类别 Test Sort	委托检测
报告日期 Date of Report	2018 年 03 月 21 日

地址：北京市海淀区中关村东路 29 号理化所 38 信箱　邮　编：100190
电话：(010) 82543775　网　址：lhjc.ipc.ac.cn
传真：(010) 82543776　电子信箱：lhjc@mail.ipc.ac.cn

中国科学院理化技术研究所抗菌材料检测中心

报告编号：LIHKJ-1803-09-1/1　　共 2 页　第 1 页

样品名称	JM-TTA01	检测类别	委托检测
样品编号	L18072	委托单位	京程科技股份有限公司
样品数量	12 片		
规格型号	JM-TTA01	详细地址	中国台湾桃园市龟山区民生北路一段 40 之 2 号 5 楼之 3
商　标	JM		
出厂批号	N/A	收检日期	2018-02-07
制造厂商	京程科技股份有限公司	检测日期	2018-03-05～2018-03-09
		检测项目	抗菌活性值

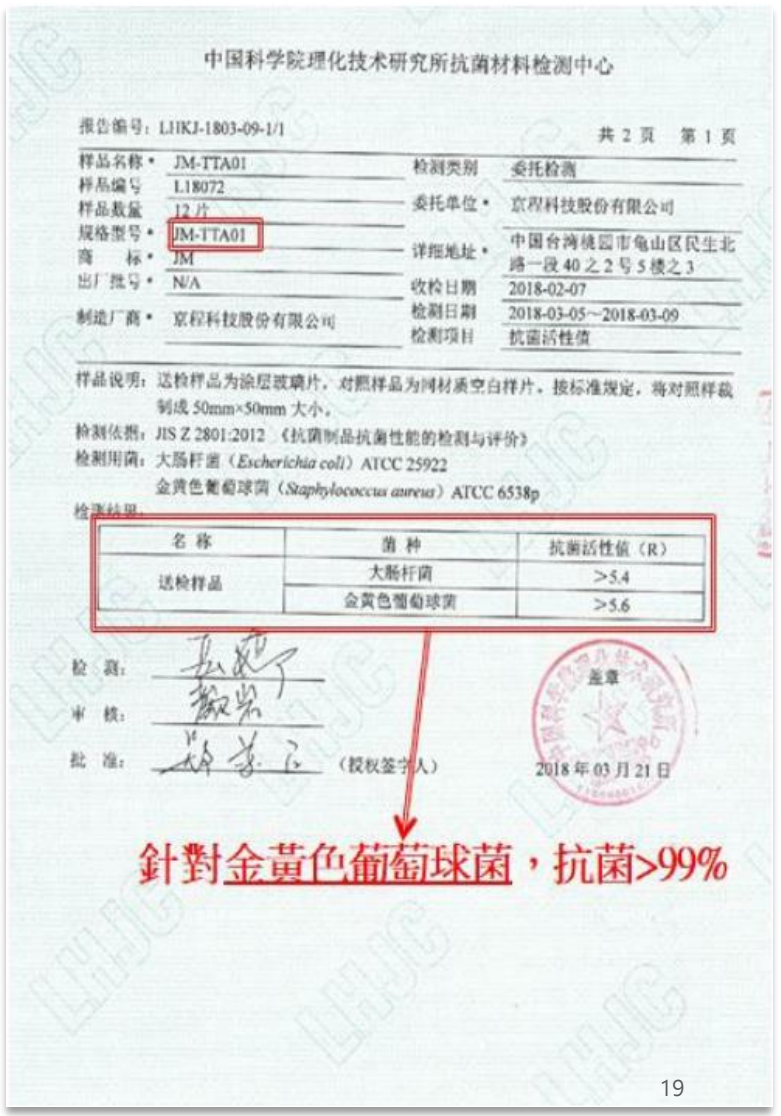
样品说明：送检样品为涂层玻璃片，对照样品为同材质空白样片，按标准规定，将对照样裁制成 50mm×50mm 大小。
检测依据：JIS Z 2801:2012《抗菌制品抗菌性能的检测与评价》
检测用菌：大肠杆菌（*Escherichia coli*）ATCC 25922
金黄色葡萄球菌（*Staphylococcus aureus*）ATCC 6538p

检测结果：

名称	菌种	抗菌活性值（R）
送检样品	大肠杆菌	>5.4
	金黄色葡萄球菌	>5.6

检　测：
审　核：
批　准：　（授权签字人）　盖章　2018 年 03 月 21 日

針對大腸桿菌，抗菌>99%



中国科学院理化技术研究所抗菌材料检测中心

报告编号：LIHKJ-1803-09-1/1　　共 2 页　第 1 页

样品名称	JM-TTA01	检测类别	委托检测
样品编号	L18072	委托单位	京程科技股份有限公司
样品数量	12 片		
规格型号	JM-TTA01	详细地址	中国台湾桃园市龟山区民生北路一段 40 之 2 号 5 楼之 3
商　标	JM		
出厂批号	N/A	收检日期	2018-02-07
制造厂商	京程科技股份有限公司	检测日期	2018-03-05～2018-03-09
		检测项目	抗菌活性值

样品说明：送检样品为涂层玻璃片，对照样品为同材质空白样片，按标准规定，将对照样裁制成 50mm×50mm 大小。
检测依据：JIS Z 2801:2012《抗菌制品抗菌性能的检测与评价》
检测用菌：大肠杆菌（*Escherichia coli*）ATCC 25922
金黄色葡萄球菌（*Staphylococcus aureus*）ATCC 6538p

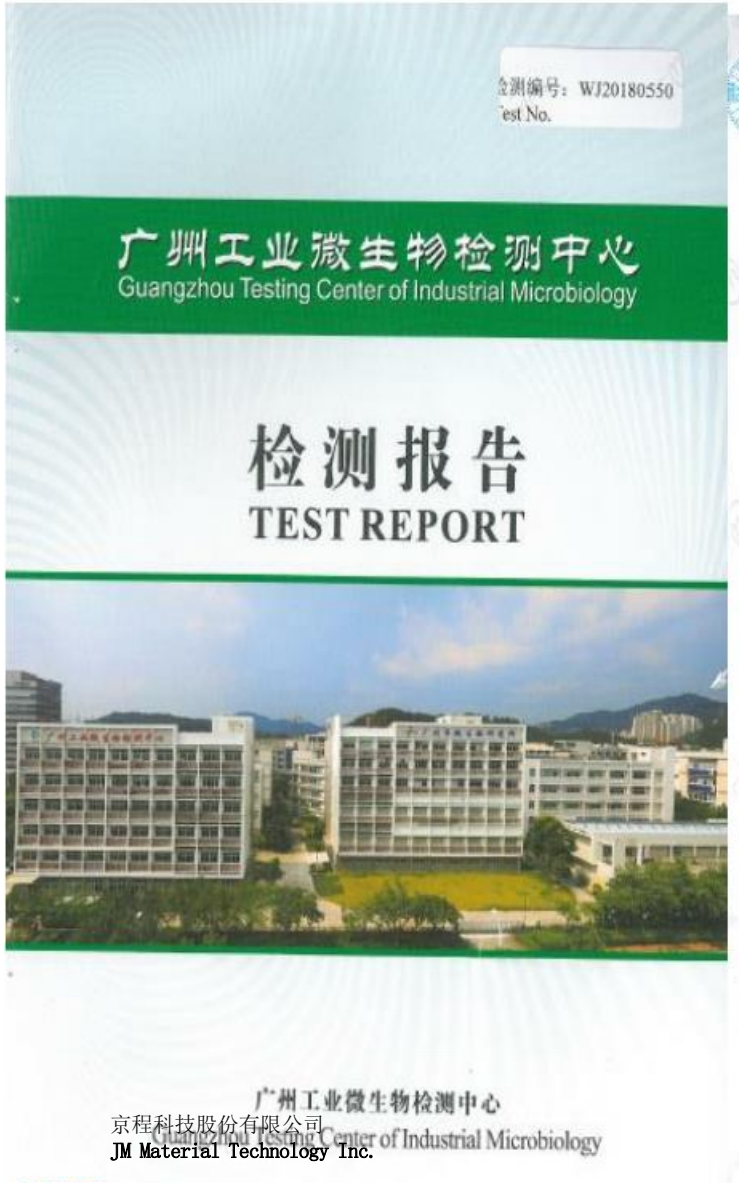
检测结果：

名称	菌种	抗菌活性值（R）
送检样品	大肠杆菌	>5.4
	金黄色葡萄球菌	>5.6

检　测：
审　核：
批　准：　（授权签字人）　盖章　2018 年 03 月 21 日

針對金黃色葡萄球菌，抗菌>99%

廣州工業微生物檢測中心 測試報告



食品工業研究所 及 SGS 抗菌測試報告

生機生技 生機無限
lifenergy bio
the immune health company

食研所
抗超級細菌(MRSA)測試報告

附件： 2015CT281　　第 1 頁 / 全 1 頁

委託試驗報告

JM-TTA01-N000 對金黃色葡萄球菌之
甲氧西林抗性株 (MRSA BCRC 15211) 之抗菌試驗

一、摘要

委託檢測 JM-TTA01-N000 對金黃色葡萄球菌之甲氧西林抗性株 (MRSA BCRC 15211) 之抗菌效果，結果顯示：參考「TN-002 奈米光觸媒抗菌陶瓷面磚驗證規範」之評估標準，JM-TTA01-N000 樣品經紫外光燈照射 24 小時後，對金黃色葡萄球菌之甲氧西林抗性株 (MRSA BCRC 15211) 之抗菌率為大於 99.03 %。

二、背景資料

試驗編號：2015CT281
樣品名稱：JM-TTA01-N000
檢驗方法：TN-002 奈米光觸媒抗菌陶瓷面磚驗證規範
附錄 I 奈米光觸媒抗菌陶瓷面磚抗菌功能試驗方法
照光條件：UV-A 365nm、0.2mW/cm²、24 小時
測 試 面：非打叉面

三、結果與討論

經接種試驗菌株在樣品上，以紫外光燈照射 24 小時後，以 Nutrient Agar 培養基測其菌數，試驗結果如表一所示。

表一、樣品對金黃色葡萄球菌之甲氧西林抗性株 (MRSA BCRC 15211) 之抗菌情形

試驗組別	接種後立即洗下菌數(CFU[1]/片)	明條件 24 小時後菌數(CFU/片)	暗條件 24 小時後菌數(CFU/片)	抗菌率 (%)
空白組	A = 2.37×10^5	B1 = 1.12×10^4	B0 = 4.40×10^5	---
對照組	---	---	D0 = 1.75×10^6	---
樣品組 [JM-TTA01-N000]	---[2]	C1 = < 10	C0 = 1.03×10^3	> 99.03

[1]CFU：菌落形成單位 [2]低濃數摔

四、附註說明

試驗結果以抗菌率 (R %) 表示，計算公式如下：

$$\text{抗菌率} = \frac{\text{暗條件24小時菌數(C0)} - \text{明條件24小時菌數(C1)}}{\text{暗條件 24 小時菌數(C0)}} \times 100\ \%$$

食研所
軍團桿菌 測試報告

委託試驗報告
JM-TTA01 對抗伍軍人桿菌
(*Legionella pneumophila* BCRC 16085) 之抗菌試驗

食研所
肺炎鏈球菌 測試報告

JM-TTA01 對肺炎鏈球菌
(*Streptococcus pneumoniae* BCRC 14733) 之抗菌試驗

SGS
腸道沙門氏菌 測試報告

SGS

SGS 綠
膿桿菌 測試報告

SGS
FOOD LAB-TAICHUNG
測 試 報 告
Test Report

SGS
白色念珠球菌測試報告

SGS

食研所
奇異變形桿菌測試報告

委託試驗報告
JM-TTA01 對奇異變型桿菌之抗菌試驗

SGS 抗菌測試報告

SGS 大腸桿菌-測試報告

食品實驗室-台中
FOOD LAB-TAICHUNG
測 試 報 告
Test Report

京程科技股份有限公司
桃園縣龜山鄉民生北路一段40-2號5樓之3

報告編號：BA/2013/40614
日期：2013/05/03
頁數：1 of 2

以下測試之樣品係由供應廠商所提供及確認:

產品名稱: 奈米光觸媒塗料(玻璃板)
申請廠商: 京程科技股份有限公司
產品型號/批號: JM-TTA01
送樣日期: 2013/04/18
測試日期: 2013/04/19
測試方法: JIS Z2801

測試結果:

試驗菌種：	大腸桿菌		ATCC 8739
試驗組別	CFU/cm²	LOG	抗菌值 (R)
A	1.9×10^4	4.3	> 5.6
B	2.3×10^5	5.4	
C	< 0.63	-0.2	

試驗菌種：	金黃色葡萄球菌		ATCC 6538
試驗組別	CFU/cm²	LOG	抗菌值 (R)
A	2.4×10^4	4.4	2.7
B	2.1×10^5	5.3	
C	3.6×10^2	2.6	

備註:
1. A: 無加工樣品接種後立即測試之菌數，其應介於$6.2*10^3$~$2.5*10^4$ CFU/cm²。
2. B: 無加工樣品經24小時培養後之菌數。
3. C: 加工樣品經24小時培養後之菌數。
4. 抗菌值 (R) = [log(B/C)]；抗菌活性值 (R) 若大於2.0，表示有抗菌效果。
5. 若無"無加工樣品"以空白組代替之。
6. 本報告不得分離或擷錄使用

---oOo---

Weber Lin, M.R. Manager
Signed for and on behalf of
SGS Taiwan Ltd.

SGS 金黃葡萄球菌-測試報告

食品實驗室-台中
FOOD LAB-TAICHUNG
測 試 報 告
Test Report

JM MATERIAL TECHNOLOGY INC.
O.5F-3, NO.40-2, SEC.1, MINSHENG N.RD., GUISHAN
TOWNSHIP,TAOYUAN COUNTY 333, TAIWAN(R.O.C.)

Report No. BA/2013/40614B-01
Date : 2013/05/03
Page : 1 of 2

THE FOLLOWING MERCHANDISE WAS(WERE) SUBMITTED AND IDENTIFIED BY THE CLIENT AS :

Product Name: Nanophotocatalyst(glass)
Application : JM MATERIAL TECHNOLOGY INC.
Item No./Lot. No.: JM-TTA01
Sample Received : 2013/04/18
Testing Date : 2013/04/19

Test Method JIS Z2801

TEST BACTERIA :	*Escherichia coli*		ATCC 8739
Test Group	CFU/cm²	LOG	Antibacterial activity (R)
A	1.9×10^4	4.3	> 5.6
B	2.3×10^5	5.4	
C	< 0.63	-0.2	

TEST BACTERIA :	*Staphylococcus aureus*		ATCC 6538
Test Group	CFU/cm²	LOG	Antibacterial activity (R)
A	2.4×10^4	4.4	2.7
B	2.1×10^5	5.3	
C	3.6×10^2	2.6	

NOTE:
1. A : Untreated test piece at "0" hr, bacteria counts should be at $6.2*10^3$ to $2.5*10^4$ CFU/cm²
2. B : Untreated test piece at "24" hrs
3. C : Antibacterial test piece at "24" hrs
4. Antibacterial activity (R)= [log(24hr/B*)] ; R shall be > 2 for Antibacterial effectiveness.
5. If "Untreated test piece" can't be prepared, "Blank" may be used.
6. The report is in vain if it is partly reproduced or used.
6. This report replaced BA/2013/40614A-01 (Test method was modified on 2018/03/05).

---oOo---

Weber Lin / Manager
Signed for and on behalf of
SGS Taiwan Ltd.

台美檢驗 & 成大微奈米科技研究中心 安全性測試報告

生機生技 生機無限
lifenergy bio
the immune health company

台美檢驗測試所 皮膚毒性

SUPER LAB
because results matter

3）。因此，根據「兔子試驗之刺激反應分類」（附件 4）將本試驗物質歸類為「無刺激性（non-irritant）」。

5. 討論：

本試驗依據 TN-050 奈米抗菌塗料驗證規範進行測試，試驗時將試驗物質以貼片方式接觸兔子皮膚達 4 小時，並根據兔子皮膚所顯現的局部刺激反應判定試驗物質是否有使用安全方面之疑慮。本次試驗結果顯示，兔子皮膚經接觸試驗物質後 72 小時內並無出現任何刺激反應。因此，「奈米新型複合材料 Nanocomposite Material」於本試驗之設計條件下，對於紐西蘭大白兔之皮膚並無刺激性（non-irritant）。

6. 參考文獻：

6.1 行政院衛生署：藥物非臨床試驗優良操作規範(Good Laboratory Practice for Nonclinical Studies)，2006，台灣。

6.2 TN-050：奈米抗菌塗料驗證規範 1.0 版，2013，台灣。

6.3 Chinese National Standards (CNS). Biological evaluation of medical devices - Part 10: tests for irritation and sensitization. CNS 14393-10, 2005. Taiwan, R.O.C.

6.4 Food and Drug Administration (FDA). Good Laboratory Practice for Nonclinical Laboratory Studies. 21 CFR, Part 58, 1987. U.S.A.

6.5 International Organization for Standardization (ISO). Biological evaluation of medical devices – part 10: Tests for irritation and skin sensitization. ISO 10993-10, 2010, 3rd ed. Switzerland.

6.6 Organisation for Economic Co-operation and Development (OECD). OECD guideline for the testing of chemicals. Acute Dermal Irritation/Corrosion. OECD 404, 2002. France.

6.7 United States Environmental Protection Agency (EPA). Health effects test guidelines. Acute dermal irritation. OPPTS 870.2500, 1998. U.S.A.

成大微奈米科技研究中心 口服毒性 安全報告

國立成功大學 微奈米科技研究中心
奈米技術產品測試實驗室

報告編號：1402-03-2

總結：

試驗物質「奈米新型複合材料」經口服投予單一劑量至大鼠後，經 14 天觀察發現，劑量組與對照組無發現臨床症狀；在體重增重方面劑量組與對照組相較下則均無顯著差異。在飼料攝取方面也無任何意義之差異。在肉眼觀察病變方面，劑量組與對照組均無可觀察之肉眼病變。根據本試驗結果顯示，試驗物質「奈米新型複合材料」在 5,000 mg/kg 濃度下對大鼠並未產生急性毒性反應。本報告說明口服急毒性 LD50 劑量為超過雌雄動物體 5,000 mg/kg 以上。

五、參考資料

1. 口服急毒性試驗作業指導程序書 (DWI-T-S20) ，3.0版，2013年。
2. 口服急毒性試驗不確定來源分析(DRP-S12)，1.0版，2013年。
3. 奈米抗菌製品驗證規範 (TN-050)，1.0 版，2013年。

六、注意事項

1. 此測試報告結果是在該測試樣本所標示濃度下所得到之試驗結果，供申請單位參考。
2. 本測試報告內容未經本實驗室書面同意，不得以任何方式複製，但全份複製除外。
3. 各項測試數據非經本實驗室同意不得用於商業廣告之標示、法律訴訟之證據等其他用途，違者本實驗室得依法追訴。(以下空白)

取得美國及多國專利

The Director of the United States Patent and Trademark Office

Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America, and if the invention is a process, of the right to exclude others from using, offering for sale or selling throughout the United States of America, or importing into the United States of America, products made by that process, for the term set forth in 35 U.S.C. 154(a)(2) or (c)(1), subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b). See the Maintenance Fee Notice on the inside of the cover.

Michelle K. Lee

Director of the United States Patent and Trademark Office

(12) United States Patent
Lu et al.

(10) Patent No.: US 9,522,384 B2
(45) Date of Patent: Dec. 20, 2016

(54) PHOTOCATALYTIC STRUCTURE AND METHOD FOR MANUFACTURING PHOTOCATALYTIC SOL-GELS

(71) Applicant: JM MATERIAL TECHNOLOGY INC., Taoyuan County (TW)

(72) Inventors: Li-Fong Lu, Taoyuan County (TW); Ya-Wen Chen, Taipei (TW)

(73) Assignee: JM MATERIAL TECHNOLOGY INC., Taoyuan County (TW)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 266 days.

(21) Appl. No.: 14/228,018

(22) Filed: Mar. 28, 2014

(65) Prior Publication Data

US 2014/0299060 A1 Oct. 2, 2014

(30) Foreign Application Priority Data

Mar. 29, 2013 (TW) ..... 102111694 U
Apr. 26, 2013 (TW) ..... 102205695 U
Dec. 19, 2013 (TW) ..... 102224894 U
Jan. 8, 2014 (TW) ..... 103100628 A

(51) Int. Cl.
B01J 23/50 (2006.01)
B01J 23/06 (2006.01)
(Continued)

(52) U.S. Cl.
CPC B01J 23/50 (2013.01); B01D 53/885 (2013.01); B01J 21/063 (2013.01); B01J 21/08 (2013.01); B01J 35/004 (2013.01); B01J 35/0013 (2013.01); B01J 37/0215 (2013.01); B01J 37/036 (2013.01); C01G 37/054 (2013.01);

(58) Field of Classification Search
See application file for complete search history.

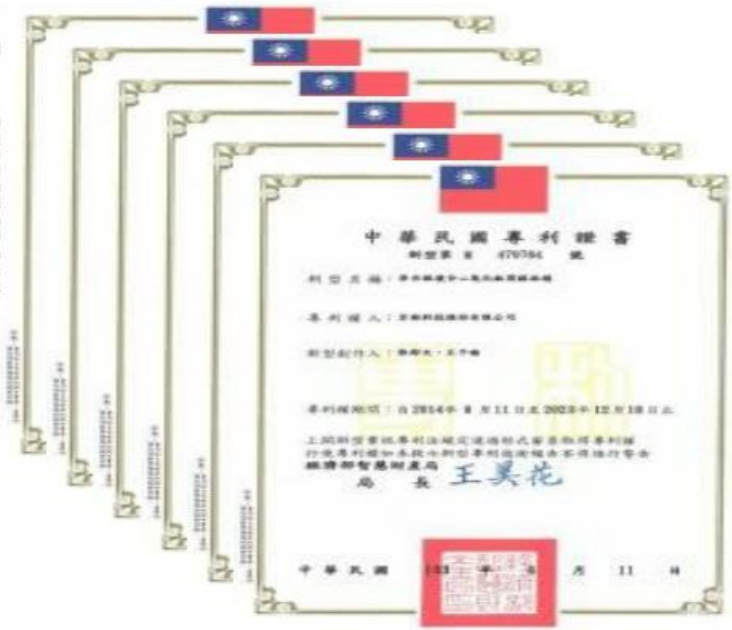
(56) References Cited
U.S. PATENT DOCUMENTS
FOREIGN PATENT DOCUMENTS
OTHER PUBLICATIONS
(Continued)

Primary Examiner — Melvin C Mayes
Assistant Examiner — Stefanie Cohen
(74) Attorney, Agent, or Firm — Chun-Ming Shih; Ei IPR Services

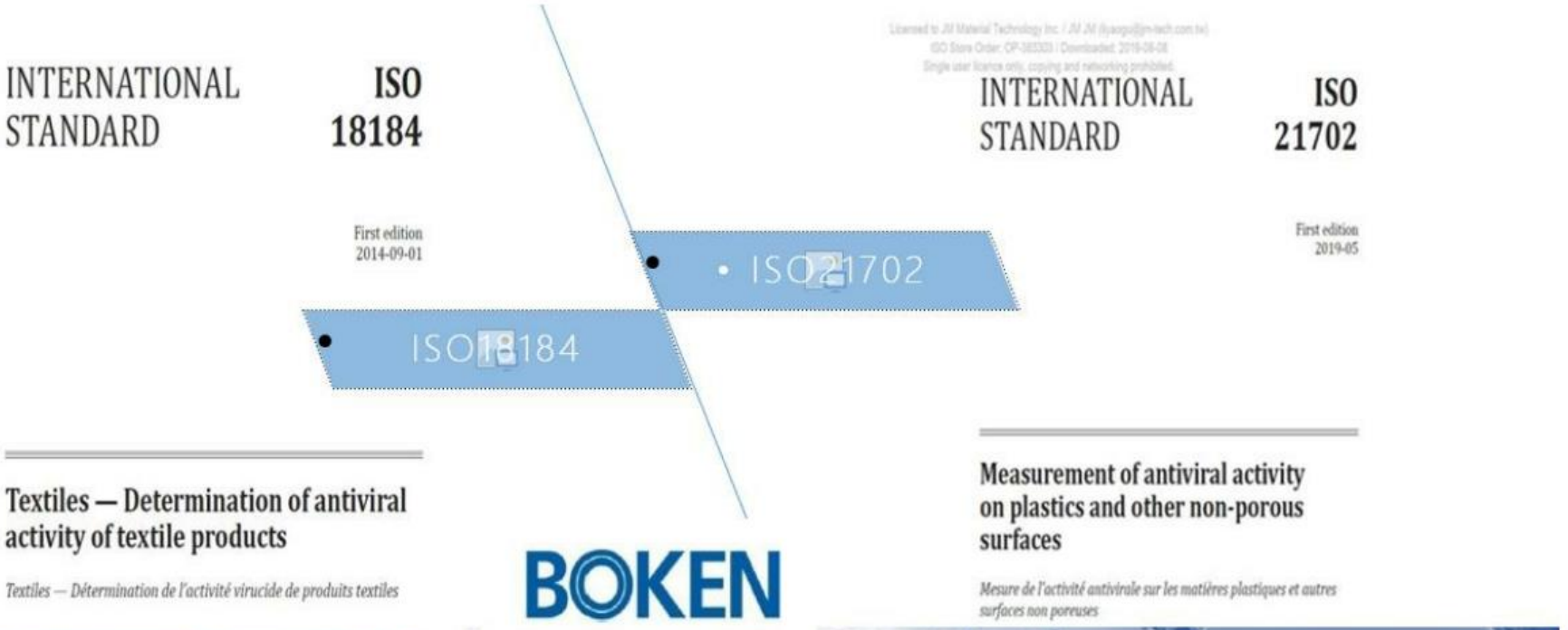
(57) ABSTRACT

The invention provides a photocatalytic structure comprising a carrier and a photocatalytic film formed on the carrier, wherein the photocatalytic film comprises titanium dioxide with shape of rhombus particles. The titanium dioxide particle has anatase structure. The titanium dioxide particle is rhombus with a major axis 10-15 nm and minor axis 7-10 nm. The photocatalytic film which is formed by titanium dioxide with shape of rhombus particles has a high photocatalytic activity so that the effects of sterilization and self-cleaning can be improved. The invention relates to a method for manufacturing photocatalytic gels.

2 Drawing Sheets



JM-TTA01取得各產品ISO報告，目前已發佈48張



- ISO18184 國際紡織品 全球抗病毒 檢測規範
  已取得抗病毒報告15張、待送測10張，共25張
- ISO21702 國際塑膠製品及無孔隙平面 全球抗病毒 檢測規範
  已取得抗病毒報告15張、待送測8張,共23張

JM-TTA01與各種材質結合通過 ISO 18184 及 21702 全球抗病毒檢測報告

ISO	取得年份	公司名稱		產品	檢測項目
18184	2018年	Sheng Hung Industrial Co., Ltd.	勝宏	熱融不織布	H1N1
	2019年	Broadgen Technology, Inc.	博建	熱融不織布	H1N1
	2019年	Sheng Hung Industrial Co., Ltd.	勝宏	宣影布	H1N1
	2019年	MEDTECS (TAIWAN) CORP.	美德	棉布	H1N1
	2019年	MEDTECS (TAIWAN) CORP.	美德	PET布	H1N1
	2019年	Kimgohale Corporation.	菁華	刷毛布	H1N1
	2020年	JM Material Ttechnology Inc.	京程	PET布	H1N1
	2020年	LY Bio Tech Co. Ltd.	天籟	熱融不織布	H1N1
	2020年	KWONG-TAI NANO BIO-TECH Co., Ltd.	廣泰	熱融不織布	H1N1
	2020年	Shiny Pacific BIOTECHNOLOGY CO., LTD	映洋	棉布	H1N1
	2020年	Shiny Pacific BIOTECHNOLOGY CO., LTD	映洋	PET布	H1N1
	2020年	Shiny Pacific BIOTECHNOLOGY CO., LTD	映洋	天絲	H1N1
	2021年	JM Material Ttechnology Inc.	京程	抗病毒紡織品	H1N1
	2021年	JM Material Ttechnology Inc.	京程	SMS隔離防護衣	H1N1
	2021年	YAN JIE Co., Ltd.	晏捷	熱融不織布	H1N1
21702	2019年	Shye Maw Steel Co., Ltd.	劭茂	度面金屬鋼板	H1N1
	2019年	Shye Maw Steel Co., Ltd.	劭茂	彩色烤漆金屬	H1N1
	2020年	JM Material Ttechnology Inc.	京程	玻璃	H1N1
	2020年	WORLDWIDE GRANITE CO., LTD.	世宏	大理石	H1N1
	2020年	WORLDWIDE GRANITE CO., LTD.	世宏	花崗岩	H1N1
	2020年	Ming Fong Technology Co., Ltd.	名峰	聚碳酸酯	H1N1
	2020年	Ming Fong Technology Co., Ltd.	名峰	鋼化玻璃	H1N1
	2020年	Ming Fong Technology Co., Ltd.	名峰	熱塑性聚氨酯彈性體	H1N1
	2021年	WONDERLAND ADVENTURE CO., LTD.	藏奇境	PEVA	H1N1
	2021年	WONDERLAND ADVENTURE CO., LTD.	藏奇境	聚酯纖維	H1N1

JM-TTA01與熱融不織布結合取得 ISO18184全球抗病毒 檢測報告

ORIGINAL

Quality Test Report

Test Report No. TW-1870157
(27718004041－1) 1 / 2

Applicant: Sheng Hung Industrial Co., Ltd.

September 28, 2018

Test results to the sample submitted are as follows.

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN Osaka Office & Laboratory
1-6-24, Chikko, Minato-ku, Osaka-shi
OSAKA 552-0021, JAPAN
TEL.+81-6-6577-0200/FAX.+81-6-6577-0210

Date of reception: July 27, 2018
Item Name/Item number: See below
Quantity: 2

[Test Item] A method specified by the applicant (Determination of antiviral activity)
[Reference standard] ISO 18184, JIS R 1702
[Test Method]
Virus solution prepared so that viable account in the MEM medium is about 10^8 PFU/mL or more was diluted 10 times with sterile purified water. Used it as test virus solution.
Inoculated 0.2 mL of the test virus solution on each 5 cm square specimen placed on the 6 cm square glass plates, covered them with 6 cm square glass plate for adhesion and irradiated the light under black light for 2 h.
After 2 h light-irradiation, put them into stomacher bags, added 20 mL of the washing-out solution, kneaded sufficiently and washed the virus out.
Measured the virus infectivity titer in the wash-out solution and calculated the common logarithm value of the infectivity titer per specimen. Used "untreated cloth" as a comparison control, and carried out the measurements after 2 h and immediately after inoculation.

Type of the light source: fluorescent blacklight lamp 20 W x 2 (TOSHIBA FL20S BLB)
Integrating UV light meter: Hamamatsu Photonics K.K., C10427, H10428
Irradiation condition: 0.25 mW/cm²·2 h (25±5 ℃)
Type of the glass plate for adhesion: borosilicate glass
Type of the glass for moisture retention: borosilicate glass
Wash-out solution: SCDLP medium
Measurement method of the virus infectivity titer: Plaque assay

[Test virus] Influenza A virus (H1N1): ATCC VR-1469

[Test Result]
Concentration of the test virus: 2.6 × 10^7 PFU/mL

Name of the sample	Common logarithm value of infectivity titer	Antiviral activity value
Untreated cloth, immediately after inoculation	6.66	———
Untreated cloth, after 2 h	6.40	———
Non-woven fabric AT series Material: JM-TTA01	4.26	2.1

Notice – This test result is applied to the submitted sample, not to the lot.
Unauthorized reproduction, in whole or in part, is strictly prohibited.

ISO 18184:2014(E)

Annex G
(informative)

Antiviral efficacy

G.1 Antiviral perforamance of the products

The antiviral textile products may be evaluated by the categories according to the following table from the result of this test.

Tabelle G.1 — Antivial performance standard

Item	Antiviral efficacy value *Mv*	Standard
Tested textile product	$3{,}0 > Mv \geq 2{,}0$	Small effect
	$Mv \geq 3{,}0$	Full effect

應用：口罩、隔離衣/防護衣、空氣/汽車濾網、濕紙巾

ISO18184
有效通過抗H1N1病毒檢測報告

JM-TTA01與宣影布結合取得 ISO18184全球抗病毒 檢測報告

ORIGINAL

Quality Test Report

Test Report No. TW-1930102A
(24419003008－1) 1 / 2

Applicant: Sheng Hung Industrial Co., Ltd.

April 22, 2019

Test results to the sample submitted are as follows.

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN Osaka Functional Textile Testing Center
1-6-24, Chikko, Minato-ku, Osaka-shi
OSAKA 552-0021, JAPAN
TEL.+81-6-6577-0200/FAX.+81-6-6577-0210

Date of reception: April 3, 2019
Item Name/Item number: Non woven fabric
Quantity: 2

[Test Item] A method specified by the applicant (Determination of antiviral activity)
[Reference standard] ISO 18184, JIS R 1702
[Test Method]
Virus solution prepared so that viable account in the MEM medium is about 10^8 PFU/mL or more was diluted 10 times with sterile purified water. Used it as test virus solution.
Inoculated 0.2 mL of the test virus solution on each 5 cm square specimen placed on the 6 cm square glass plates, covered them with 6 cm square glass plate for adhesion and irradiated the light under black light for 2 h.
After 2 h light-irradiation, put them into stomacher bags, added 20 mL of the washing-out solution, kneaded sufficiently and washed the virus out.
Measured the virus infectivity titer in the wash-out solution and calculated the common logarithm value of the infectivity titer per specimen. Used "RWT13075E" as a comparison control, and carried out the measurements after 2 h and immediately after inoculation.

Type of the light source: fluorescent blacklight lamp 20 W x 2 (TOSHIBA FL20S BLB)
Integrating UV light meter: Hamamatsu Photonics K.K., C10427, H10428
Irradiation condition: 0.25 mW/cm²-2 h (25±5 ℃)
Type of the glass plate for adhesion: borosilicate glass
Type of the glass for moisture retention: borosilicate glass
Wash-out solution: SCDLP medium
Measurement method of the virus infectivity titer: Plaque assay

[Test virus] Influenza A virus (H1N1): ATCC VR-1469

[Test Result]
Concentration of the test virus: 2.4 × 10^7 PFU/mL

Name of the sample	Common logarithm value of infectivity titer	Antiviral activity value
RWT13075E, immediately after inoculation	6.55	———
RWT13075E, after 2 h	5.72	———
JM-TTA01 AP series	2.30 or less	3.4

Notice – This test result is applied to the submitted sample, not to the lot.
Unauthorized reproduction, in whole or in part, is strictly prohibited.

ISO 18184:2014(E)

Annex G
(informative)

Antiviral efficacy

G.1 Antiviral perforamance of the products

The antiviral textile products may be evaluated by the categories according to the following table from the result of this test.

Tabelle G.1 — Antivial performance standard

Item	Antiviral efficacy value *Mv*	Standard
Tested textile product	$3{,}0 > Mv \geq 2{,}0$	Small effect
	$Mv \geq 3{,}0$	Full effect

應用：壁紙、裝飾材

ISO18184
有效通過抗H1N1病毒檢測報告

JM-TTA01與熱融不織布結合取得 ISO18184全球抗病毒 檢測報告

ORIGINAL

Quality Test Report

Test Report No. TW-19A0217
(24419003334-1) 1 / 2

Applicant:Broadgen Technology, Inc.
11F, No.98-1, Sec 1, Nankan Rd,
Luzhu Dist, Taoyuan City 338, Taiwan

November 11, 2019

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN Osaka Functional Textile Testing Center
1-6-24, Chikko, Minato-ku, Osaka-shi
OSAKA 552-0021, JAPAN
TEL.+81-6-6577-0200/FAX.+81-6-6577-0210

Test results to the sample submitted are as follows.

Date of reception: October 25, 2019
Item Name/Item number: Thermal Bond non-woven
Quantity: 2

[Test Item] A method specified by the applicant (Determination of antiviral activity)
[Reference standard] ISO18184, JIS R 1702
[Test Method]
Virus solution prepared so that viable account in the MEM medium is about 10^8 PFU/mL or more was diluted 10 times with sterile purified water. Used it as test virus solution.
Inoculated 0.2 mL of the test virus solution on each 5 cm square specimen placed on the 6 cm square glass plates, covered them with 6 cm square glass plate for adhesion and irradiated the light under black light for 2 h.
After 2 h light-irradiation, put them into stomacher bags, added 20 mL of the washing-out solution, kneaded sufficiently and washed the virus out.
Measured the virus infectivity titer in the wash-out solution and calculated the common logarithm value of the infectivity titer per specimen. Used "Thermal Bond non-woven (Blank)" as a comparison control, and carried out the measurements after 2 h and immediately after inoculation.

Type of the light source: fluorescent blacklight lamp 20 W x 2 (TOSHIBA FL20S BLB)
Integrating UV light meter: Hamamatsu Photonics K.K., C10427, H10428
Irradiation condition: 0.25 mW/cm²·2 h (25±5 ℃)
Type of the glass plate for adhesion: borosilicate glass
Type of the glass for moisture retention: borosilicate glass
Wash-out solution: SCDLP medium
Measurement method of the virus infectivity titer: Plaque assay

[Test Result]
Concentration of the test virus: 1.2×10^7 PFU/mL

Name of the sample	Common logarithm value of infectivity titer	Antiviral activity value
Thermal Bond non-woven (Blank), immediately after inoculation lg(Va)	6.46	———
Thermal Bond non-woven (Blank), after 2 h lg(Vb)	5.71	———
Thermal Bond non-woven coated with JM nanocomposite material (JM-TTA01) lg(Vc)	4.31	2.2

ISO 18184:2014(E)

Annex G
(informative)

Antiviral efficacy

G.1 Antiviral perforamance of the products

The antiviral textile products may be evaluated by the categories according to the following table from the result of this test.

Tabelle G.1 — Antivial performance standard

Item	Antiviral efficacy value *Mv*	Standard
Tested textile product	$3{,}0 > Mv \geq 2{,}0$	Small effect
	$Mv \geq 3{,}0$	Full effect

應用：口罩、隔離衣/防護衣、空氣/汽車濾網、濕紙巾

ISO18184
有效通過抗H1N1病毒檢測報告

JM-TTA01與熱融不織布結合取得 ISO18184全球抗病毒 檢測報告

Quality Test Report

ORIGINAL

Test Report No. TW-19C0108
(24419006271-1) 1 / 2

Applicant:LY Bio Tech co.Ltd.
7F, No.53, Minchiuan Rd., Yunghe Dist.,
New Taipei City, 23453 Taiwan, R.O.C.

January 6, 2020

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN Osaka Functional Textile Testing Center
1-6-24, Chikko, Minato-ku, Osaka-shi
OSAKA 552-0021, JAPAN
TEL.+81-6-6577-0200/FAX.+81-6-6577-0210

Test results to the sample submitted are as follows.

Date of reception: December 11, 2019
Item Name/Item number: Virus Away
Quantity: 2

[Test Item] A method specified by the applicant (Determination of antiviral activity)
[Reference standard] ISO 18184, JIS R 1702
[Test Method]
Virus solution prepared so that viable account in the MEM medium is about 10^8 PFU/mL or more was diluted 10 times with sterile purified water. Used it as test virus solution.
Inoculated 0.2 mL of the test virus solution on each 5 cm square specimen placed on the 6 cm square glass plates, covered them with 6 cm square glass plate for adhesion and irradiated the light under black light for 2 h.
After 2 h light-irradiation, put them into stomacher bags, added 20 mL of the washing-out solution, kneaded sufficiently and washed the virus out.
Measured the virus infectivity titer in the wash-out solution and calculated the common logarithm value of the infectivity titer per specimen. Used "Virus Away (Blank)" as a comparison control, and carried out the measurements after 2 h and immediately after inoculation.

Type of the light source: fluorescent blacklight lamp 20 W x 2 (TOSHIBA FL20S BLB)
Integrating UV light meter: Hamamatsu Photonics K.K., C10427, H10428
Irradiation condition: 0.25 mW/cm²·2 h (25±5 ℃)
Type of the glass plate for adhesion: borosilicate glass
Type of the glass for moisture retention: borosilicate glass
Wash-out solution: SCDLP medium
Measurement method of the virus infectivity titer: Plaque assay

[Test Result]
Concentration of the test virus: 1.6×10^7 PFU/mL

Name of the sample	Common logarithm value of infectivity titer	Antiviral activity value
Virus Away (Blank), immediately after inoculation lg[Va]	5.96	———
Virus Away (Blank), after 2 h lg[Vb]	2.50	———
Virus Away coated with JM nanocomposite material (JM-TTA01) lg[Vc]	2.73	3.2

* Judgment of test effectiveness of control specimens in ISO18184:2019.
M − lg[Va] − lg[Vb] ≤ 1.0
* Calculation of antiviral activity value in ISO18184:2019.
Antiviral activity value = lg[Va] − lg[Vc]

Notice − This test result is applied to the submitted sample, not to the lot.

ISO 18184:2014(E)

Annex G
(informative)

Antiviral efficacy

G.1 Antiviral perforamance of the products

The antiviral textile products may be evaluated by the categories according to the following table from the result of this test.

Tabelle G.1 — Antivial performance standard

Item	Antiviral efficacy value *Mv*	Standard
Tested textile product	3,0 > *Mv* ≥ 2,0	Small effect
	Mv ≥ 3,0	Full effect

應用：口罩、隔離衣/防護衣、空氣/汽車濾網、濕紙巾

ISO18184
有效通過抗H1N1病毒檢測報告

JM-TTA01與棉布結合取得 ISO18184全球抗病毒 檢測報告

ORIGINAL

Quality Test Report

Test Report No. TW-1990289
(24419003202-1) 1 / 2

Applicant: MEDTECS (TAIWAN) CORP.
11F, No. 9, SongGao Rd., Xinyi Dist.,
Taipei city 110, Taiwan

October 30, 2019

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN Osaka Functional Textile Testing Center
1-6-24, Chikko, Minato-ku, Osaka-shi
OSAKA 552-0021, JAPAN
TEL.+81-6-6577-0200/FAX.+81-6-6577-0210

Test results to the sample submitted are as follows.

Date of reception: September 27, 2019
Item Name/Item number: COTTON-RICH FABRICS
Quantity: 2

[Test Item] A method specified by the applicant (Determination of antiviral activity)
[Reference standard] ISO18184, JIS R 1702
[Test Method]
Virus solution prepared so that viable account in the MEM medium is about 10^8 PFU/mL or more was diluted 10 times with sterile purified water. Used it as test virus solution.
Inoculated 0.2 mL of the test virus solution on each 5 cm square specimen placed on the 6 cm square glass plates, covered them with 6 cm square glass plate for adhesion and irradiated the light under black light for 2 h.
After 2 h light-irradiation, put them into stomacher bags, added 20 mL of the washing-out solution, kneaded sufficiently and washed the virus out.
Measured the virus infectivity titer in the wash-out solution and calculated the common logarithm value of the infectivity titer per specimen. Used "COTTON-RICH FABRICS (Blank)" as a comparison control, and carried out the measurements after 2 h and immediately after inoculation.

Type of the light source: fluorescent blacklight lamp 20 W x 2 (TOSHIBA FL20S BLB)
Integrating UV light meter: Hamamatsu Photonics K.K., C10427, H10428
Irradiation condition: 0.25 mW/cm²·2 h (25±5 ℃)
Type of the glass plate for adhesion: borosilicate glass
Type of the glass for moisture retention: borosilicate glass
Wash-out solution: SCDLP medium added with 10% serum
Measurement method of the virus infectivity titer: Plaque assay

[Test virus] Influenza A virus (H1N1): ATCC VR-1469

[Test Result]
Concentration of the test virus: 1.4×10^7 PFU/mL

Name of the sample	Common logarithm value of infectivity titer	Antiviral activity value
COTTON-RICH FABRICS (Blank), immediately after inoculation lg[Va]	5.88	———
COTTON-RICH FABRICS (Blank), after 2 h lg[Vb]	2.30	———
COTTON-RICH FABRICS coated with JM nanocomposite material (JM-TTA01 + JM- PTEX1) lg[Vc]	2.30	3.6

ISO 18184:2014(E)

Annex G
(informative)

Antiviral efficacy

G.1 Antiviral perforamance of the products

The antiviral textile products may be evaluated by the categories according to the following table from the result of this test.

Tabelle G.1 — Antivial performance standard

Item	Antiviral efficacy value *Mv*	Standard
Tested textile product	$3,0 > Mv \geq 2,0$	Small effect
	$Mv \geq 3,0$	Full effect

應用：開刀房棉手術衣、醫師刷手衣褲

ISO18184
有效通過抗H1N1病毒檢測報告

JM-TTA01與棉布結合取得 ISO18184全球抗病毒 檢測報告

ORIGINAL

Quality Test Report

Test Report No. TW-2010146
(24419006282-1) 1 / 2

Applicant: Shiny Pacific BIOTECHNOLOGY CO., LTD
NO. 4, ALY8, LN 72, SEC 1, DIHUA ST., DATONG DIST.,
TAIPIE CITY, 10344, TAIWAN (R. O. C.)

February 17, 2020

Test results to the sample submitted are as follows.

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN
Osaka Functional Textile Testing Center
1-6-24, Chikko, Minato-ku, Osaka-shi
OSAKA 552-0021, JAPAN
TEL.+81-6-6577-0200/FAX.+81-6-6577-0210

Date of reception: January 16, 2020
Item Name/Item number: Cotton-Rich
Quantity: 2

[Test item] A method specified by the applicant (Determination of antiviral activity)
[Reference standard] ISO18184, JIS R 1702
[Test Method]
Virus solution prepared so that viable account in the MEM medium is about 10^8 PFU/mL or more was diluted 10 times with sterile purified water. Used it as test virus solution.
Inoculated 0.2 mL of the test virus solution on each 5 cm square specimen placed on the 6 cm square glass plates, covered them with 6 cm square glass plate for adhesion and irradiated the light under black light for 2 h.
After 2 h light-irradiation, put them into stomacher bags, added 20 mL of the washing-out solution, kneaded sufficiently and washed the virus out.
Measured the virus infectivity titer in the wash-out solution and calculated the common logarithm value of the infectivity titer per specimen. Used "Cotton-Rich (Blank)" as a comparison control, and carried out the measurements after 2 h and immediately after inoculation.

Type of the light source: fluorescent blacklight lamp 20 W x 2 (TOSHIBA FL20S BLB)
Integrating UV light meter: Hamamatsu Photonics K.K., C10427, H10428
Irradiation condition: 0.25 mW/cm²·2 h (25±5 ℃)
Type of the glass plate for adhesion: borosilicate glass
Type of the glass for moisture retention: borosilicate glass
Wash-out solution: SCDLP medium
Measurement method of the virus infectivity titer: Plaque assay

[Test virus] Influenza A virus (H1N1): ATCC VR-1469
Concentration of the test virus: 1.2×10^7 PFU/mL

Name of the sample	Common logarithm value of infectivity titer	Antiviral activity value
Cotton-Rich (Blank), immediately after inoculation lg[V_a]	6.30	———
Cotton-Rich (Blank), after 2 h lg[V_b]	2.30	———
Cotton-Rich coated with JM nanocomposite material (JM-PTFE1+JM-TTA01) lg[V_c]	2.30	4.0

* Judgment of test effectiveness of control specimens in ISO18184:2019.
  $M = \lg[V_a] - \lg[V_b] \leq 1.0$
* Calculation of antiviral activity value in ISO18184:2019.
  Antiviral activity value = $\lg[V_b] - \lg[V_c]$

ISO 18184:2014(E)

Annex G
(informative)

Antiviral efficacy

G.1 Antiviral perforamance of the products

The antiviral textile products may be evaluated by the categories according to the following table from the result of this test.

Tabelle G.1 — Antivial performance standard

Item	Antiviral efficacy value *Mv*	Standard
Tested textile product	$3,0 > Mv \geq 2,0$	Small effect
	$Mv \geq 3,0$	Full effect

應用：服飾、頭巾、嬰兒毯

ISO18184
有效通過抗H1N1病毒檢測報告

JM-TTA01與PET布結合取得 ISO18184全球抗病毒 檢測報告

ORIGINAL

Quality Test Report

Test Report No. TW-1990291
(24419003204-1) 1 / 2

Applicant:MEDTECS (TAIWAN) CORP.
11F, No. 9, SongGao Rd., Xinyi Dist.,
Taipei city 110, Taiwan

October 30, 2019

Test results to the sample submitted are as follows.

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN Osaka Functional Textile Testing Center
1-8-24, Chikko, Minato-ku, Osaka-shi
OSAKA 552-0021, JAPAN
TEL.+81-6-6577-0200/FAX.+81-6-6577-0210

Date of reception: September 27, 2019
Item Name/Item number: POLYESTER-RICH FABRICS
Quantity: 2

[Test Item] A method specified by the applicant (Determination of antiviral activity)
[Reference standard] ISO18184, JIS R 1702
[Test Method]
Virus solution prepared so that viable account in the MEM medium is about 10^8 PFU/mL or more was diluted 10 times with sterile purified water. Used it as test virus solution.
Inoculated 0.2 mL of the test virus solution on each 5 cm square specimen placed on the 6 cm square glass plates, covered them with 6 cm square glass plate for adhesion and irradiated the light under black light for 2 h.
After 2 h light-irradiation, put them into stomacher bags, added 20 mL of the washing-out solution, kneaded sufficiently and washed the virus out.
Measured the virus infectivity titer in the wash-out solution and calculated the common logarithm value of the infectivity titer per specimen. Used "POLYESTER-RICH FABRICS (Blank)" as a comparison control, and carried out the measurements after 2 h and immediately after inoculation.

Type of the light source: fluorescent blacklight lamp 20 W x 2 (TOSHIBA FL20S BLB)
Integrating UV light meter: Hamamatsu Photonics K.K., C10427, H10428
Irradiation condition: 0.25 mW/cm²·2 h (25±5 ℃)
Type of the glass plate for adhesion: borosilicate glass
Type of the glass for moisture retention: borosilicate glass
Wash-out solution: SCDLP medium added with 10% serum
Measurement method of the virus infectivity titer: Plaque assay

[Test virus] Influenza A virus (H1N1): ATCC VR-1469

[Test Result]
Concentration of the test virus: 1.4×10^7 PFU/mL

Name of the sample	Common logarithm value of infectivity titer	Antiviral activity value
POLYESTER-RICH FABRICS (Blank), immediately after inoculation lg[Va]	6.41	———
POLYESTER-RICH FABRICS (Blank), after 2 h lg[Vb]	4.29	———
POLYESTER-RICH FABRICS coated with JM nanocomposite material(JM-TTA01 + JM- PTEX1) lg[Vc]	2.30	4.1

ISO 18184:2014(E)

Annex G
(informative)

Antiviral efficacy

G.1 Antiviral perforamance of the products

The antiviral textile products may be evaluated by the categories according to the following table from the result of this test.

Tabelle G.1 — Antivial performance standard

Item	Antiviral efficacy value *Mv*	Standard
Tested textile product	$3{,}0 > Mv \geq 2{,}0$	Small effect
	$Mv \geq 3{,}0$	Full effect

應用：病房床包、被套、枕套

ISO18184
有效通過抗H1N1病毒檢測報告

JM-TTA01與PET布結合取得 ISO18184全球抗病毒 檢測報告

ORIGINAL

Quality Test Report

Test Report No. TW-2010148
(24419006284-1) 1 / 2

Applicant:Shiny Pacific BIOTECHNOLOGY CO.,LTD
NO.4, ALY8, LN 72, SEC 1, DIHUA ST., DATONG DIST.,
TAIPIE CITY, 10344, TAIWAN (R.O.C.)

February 17, 2020

Test results to the sample submitted are as follows.

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN
Osaka Functional Textile Testing Center
1-6-24, Chikko, Minato-ku, Osaka-shi
OSAKA 552-0021, JAPAN
TEL.+81-6-6577-0200/FAX.+81-6-6577-0210

Date of reception: January 16, 2020
Item Name/Item number: Polyester-Rich
Quantity: 2

[Test item] A method specified by the applicant (Determination of antiviral activity)
[Reference standard] ISO18184, JIS R 1702
[Test Method]
Virus solution prepared so that viable account in the MEM medium is about 10^8 PFU/mL or more was diluted 10 times with sterile purified water. Used it as test virus solution.
Inoculated 0.2 mL of the test virus solution on each 5 cm square specimen placed on the 6 cm square glass plates, covered them with 6 cm square glass plate for adhesion and irradiated the light under black light for 2 h.
After 2 h light-irradiation, put them into stomacher bags, added 200 mL of the washing-out solution, kneaded sufficiently and washed the virus out.
Measured the virus infectivity titer in the wash-out solution and calculated the common logarithm value of the infectivity titer per specimen. Used "Polyester-Rich (Blank)" as a comparison control, and carried out the measurements after 2 h and immediately after inoculation.

Type of the light source: fluorescent blacklight lamp 20 W x 2 (TOSHIBA FL20S BLB)
Integrating UV light meter: Hamamatsu Photonics K.K., C10427, H10428
Irradiation condition: 0.25 mW/cm²·2 h (25±5 ℃)
Type of the glass plate for adhesion: borosilicate glass
Type of the glass for moisture retention: borosilicate glass
Wash-out solution: SCDLP medium added with 10% serum
Measurement method of the virus infectivity titer: Plaque assay

[Test virus] Influenza A virus (H1N1): ATCC VR-1469
Concentration of the test virus: 1.2 × 10^7 PFU/mL

Name of the sample	Common logarithm value of infectivity titer	Antiviral activity value
Polyester-Rich (Blank), immediately after inoculation $\lg\{V_a\}$	6.34	———
Polyester-Rich (Blank), after 2 h $\lg\{V_b\}$	4.87	———
Polyester-Rich coated with JM nanocomposite material (JM-PTEX1+JM-TTA01) $\lg\{V_c\}$	3.30	3.0

* Judgment of test effectiveness of control specimens in ISO18184:2019.
  $M = \lg\{V_a\} - \lg\{V_b\} \leq 1.0$
* Calculation of antiviral activity value in ISO18184:2019.
  Antiviral activity value = $\lg\{V_a\} - \lg\{V_c\}$

ISO 18184:2014(E)

Annex G
(informative)

Antiviral efficacy

G.1 Antiviral perforamance of the products

The antiviral textile products may be evaluated by the categories according to the following table from the result of this test.

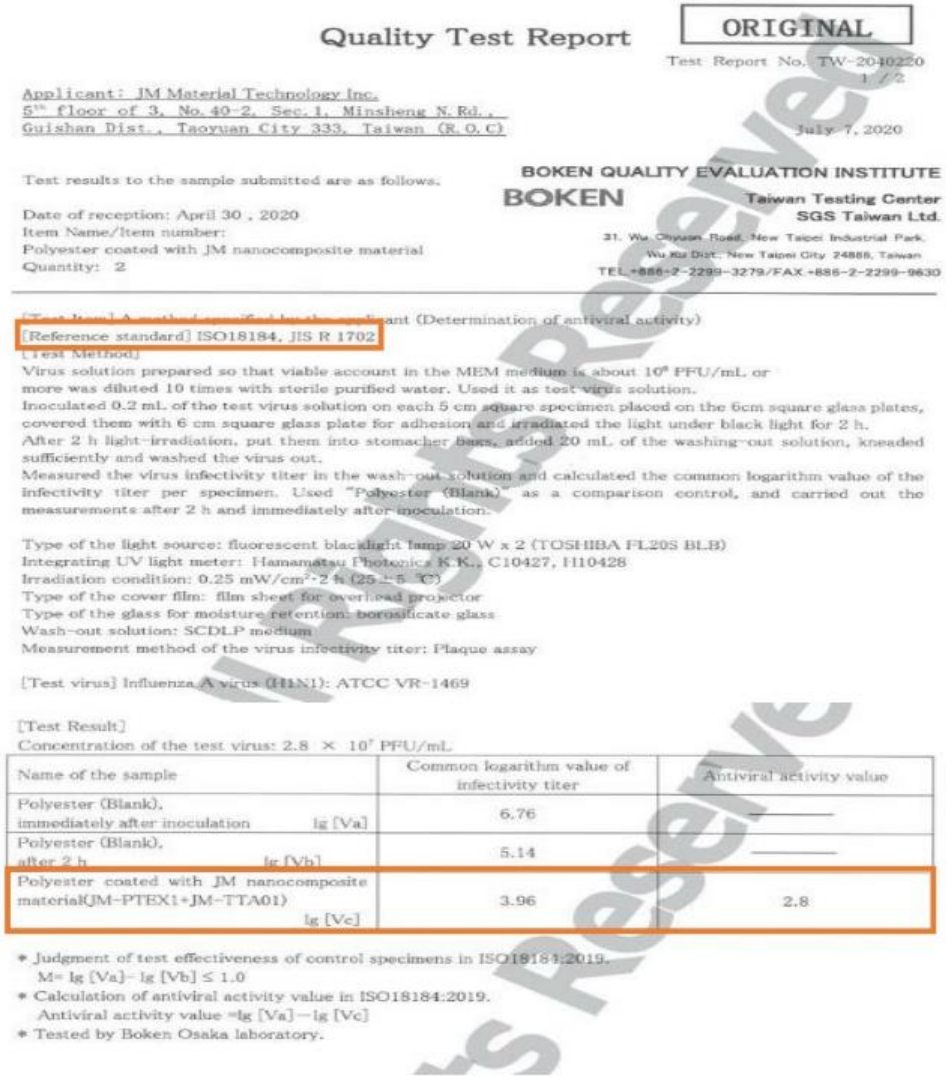
Tabelle G.1 — Antivial performance standard

Item	Antiviral efficacy value *Mv*	Standard
Tested textile product	$3,0 > Mv \geq 2,0$	Small effect
	$Mv \geq 3,0$	Full effect

應用：各種機能布、運動服飾

ISO18184
有效通過抗H1N1病毒檢測報告

JM-TTA01與PET布結合取得 ISO18184全球抗病毒 檢測報告



Quality Test Report

ORIGINAL

Test Report No. TW-2040220
1 / 2

Applicant: JM Material Technology Inc.
5th floor of 3, No.40-2, Sec.1, Minsheng N.Rd.,
Guishan Dist., Taoyuan City 333, Taiwan (R.O.C)

July 7, 2020

Test results to the sample submitted are as follows.

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN
Taiwan Testing Center
SGS Taiwan Ltd.
31, Wu Gong Road, New Taipei Industrial Park,
Wu Ku Dist., New Taipei City 24888, Taiwan
TEL:+886-2-2299-3279/FAX:+886-2-2299-9630

Date of reception: April 30 , 2020
Item Name/Item number:
Polyester coated with JM nanocomposite material
Quantity: 2

[Test Item] As mentioned/specified by the applicant (Determination of antiviral activity)
[Reference standard] ISO18184, JIS R 1702
[Test Method]
Virus solution prepared so that viable account in the MEM medium is about 10^8 PFU/mL or more was diluted 10 times with sterile purified water. Used it as test virus solution.
Inoculated 0.2 mL of the test virus solution on each 5 cm square specimen placed on the 6cm square glass plates, covered them with 6 cm square glass plate for adhesion and irradiated the light under black light for 2 h.
After 2 h light-irradiation, put them into stomacher bags, added 20 mL of the washing-out solution, kneaded sufficiently and washed the virus out.
Measured the virus infectivity titer in the wash-out solution and calculated the common logarithm value of the infectivity titer per specimen. Used "Polyester (Blank)" as a comparison control, and carried out the measurements after 2 h and immediately after inoculation.

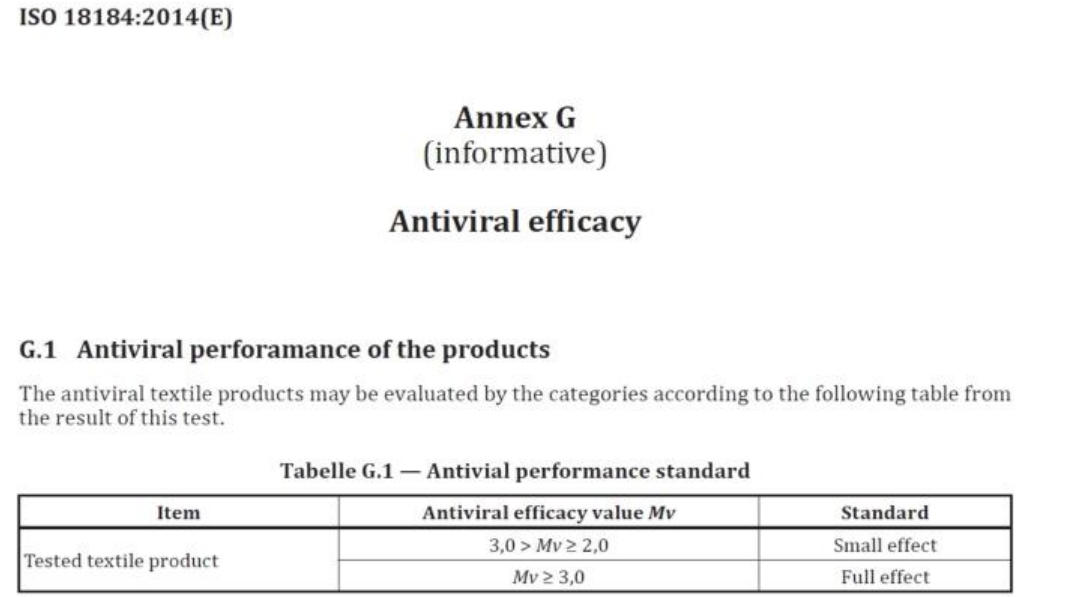
Type of the light source: fluorescent blacklight lamp 20 W x 2 (TOSHIBA FL20S BLB)
Integrating UV light meter: Hamamatsu Photonics K.K., C10427, H10428
Irradiation condition: 0.25 mW/cm²-2 h (25 ± 5 °C)
Type of the cover film: film sheet for overhead projector
Type of the glass for moisture retention: borosilicate glass
Wash-out solution: SCDLP medium
Measurement method of the virus infectivity titer: Plaque assay

[Test virus] Influenza A virus (H1N1): ATCC VR-1469

[Test Result]
Concentration of the test virus: 2.8 × 10^7 PFU/mL

Name of the sample	Common logarithm value of infectivity titer	Antiviral activity value
Polyester (Blank), immediately after inoculation lg [Va]	6.76	———
Polyester (Blank), after 2 h lg [Vb]	5.14	———
Polyester coated with JM nanocomposite material(JM-PTEX1+JM-TTA01) lg [Vc]	3.96	2.8

* Judgment of test effectiveness of control specimens in ISO18184:2019.
M= lg [Va]- lg [Vb] ≤ 1.0
* Calculation of antiviral activity value in ISO18184:2019.
Antiviral activity value =lg [Va]—lg [Vc]
* Tested by Boken Osaka laboratory.



ISO 18184:2014(E)

Annex G
(informative)

Antiviral efficacy

G.1 Antiviral perforamance of the products

The antiviral textile products may be evaluated by the categories according to the following table from the result of this test.

Tabelle G.1 — Antivial performance standard

Item	Antiviral efficacy value *Mv*	Standard
Tested textile product	3,0 > *Mv* ≥ 2,0	Small effect
	Mv ≥ 3,0	Full effect

應用：病房床包、被套、枕套

ISO18184
有效通過抗H1N1病毒檢測報告

JM-TTA01與天絲結合取得 ISO18184全球抗病毒 檢測報告

ORIGINAL

Quality Test Report

Test Report No. TW-2010147
(24419006283-1) 1 / 2

Applicant:Shiny Pacific BIOTECHNOLOGY CO., LTD
NO. 4, ALY8, LN 72, SEC 1, DIHUA ST., DATONG DIST.,
TAIPIE CITY, 10344, TAIWAN (R.O.C.)

February 17, 2020

Test results to the sample submitted are as follows.

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN
Osaka Functional Textile Testing Center
1-6-24, Chikko, Minato-ku, Osaka-shi
OSAKA 552-0021, JAPAN
TEL.+81-6-6577-0200/FAX.+81-6-6577-0210

Date of reception: January 16, 2020
Item Name/Item number: Tencel-Rich
Quantity: 2

[Test Item] A method specified by the applicant (Determination of antiviral activity)
[Reference standard] ISO18184, JIS R 1702
[Test Method]
Virus solution prepared so that viable account in the MEM medium is about 10^8 PFU/mL or more was diluted 10 times with sterile purified water. Used it as test virus solution.
Inoculated 0.2 mL of the test virus solution on each 5 cm square specimen placed on the 6 cm square glass plates, covered them with 6 cm square glass plate for adhesion and irradiated the light under black light for 2 h.
After 2 h light-irradiation, put them into stomacher bags, added 20 mL of the washing-out solution, kneaded sufficiently and washed the virus out.
Measured the virus infectivity titer in the wash-out solution and calculated the common logarithm value of the infectivity titer per specimen. Used "Tencel-Rich (Blank)" as a comparison control, and carried out the measurements after 2 h and immediately after inoculation.

Type of the light source: fluorescent blacklight lamp 20 W x 2 (TOSHIBA FL20S BLB)
Integrating UV light meter: Hamamatsu Photonics K.K., C10427, H10428
Irradiation condition: 0.25 mW/cm²·2 h (25±5 ℃)
Type of the glass plate for adhesion: borosilicate glass
Type of the glass for moisture retention: borosilicate glass
Wash-out solution: SCDLP medium
Measurement method of the virus infectivity titer: Plaque assay

[Test virus] Influenza A virus (H1N1): ATCC VR-1469
Concentration of the test virus: 1.2 × 10^7 PFU/mL

Name of the sample	Common logarithm value of infectivity titer	Antiviral activity value
Tencel-Rich (Blank), immediately after inoculation lg(Va)	6.36	———
Tencel-Rich (Blank), after 2 h lg(Vb)	2.30	———
Tencel-Rich coated with JM nanocomposite material (JM-PTEX1+JM-TTA01) lg(Vc)	2.30	4.1

* Judgment of test effectiveness of control specimens in ISO18184:2019.
M = lg(Vb) − lg(Va) ≤ 1.0
* Calculation of antiviral activity value in ISO18184:2019.
Antiviral activity value = lg(Vc) − lg(Vb)

ISO 18184:2014(E)

Annex G
(informative)

Antiviral efficacy

G.1 Antiviral perforamance of the products

The antiviral textile products may be evaluated by the categories according to the following table from the result of this test.

Tabelle G.1 — Antivial performance standard

Item	Antiviral efficacy value *Mv*	Standard
Tested textile product	3,0 > *Mv* ≥ 2,0	Small effect
	Mv ≥ 3,0	Full effect

應用：面紗、絲巾、服飾、頭巾

ISO18184
有效通過抗H1N1病毒檢測報告

JM-TTA01與刷毛布結合取得 ISO18184全球抗病毒 檢測報告

ORIGINAL

Quality Test Report

Test Report No. TW-1970238
(24419003232-1) 1 / 2

Applicant:Kingwhale Corporation
9F, No. 2, Lane 258, Rueiguang Road Neihu Technology Park, Taipei 114, Taiwan

September 24, 2019

Test results to the sample submitted are as follows.

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN Osaka Functional Textile Testing Center
1-6-24, Chikko, Minato-ku, Osaka-shi
OSAKA 552-0021, JAPAN
TEL.+81-6-6577-0200/FAX.+81-6-6577-0210

Date of reception: July 25, 2019
Item Name/Item number: See below
Quantity: 2

[Test Item] A method specified by the applicant (Determination of antiviral activity)
[Reference standard] ISO 18184, JIS R 1702
[Test Method]
Virus solution prepared so that viable account in the MEM medium is about 10^8 PFU/mL or more was diluted 10 times with sterile purified water. Used it as test virus solution.
Inoculated 0.2 mL of the test virus solution on each 5 cm square specimen placed on the 6 cm square glass plates, covered them with 6 cm square glass plate for adhesion and irradiated the light under black light for 2 h.
After 2 h light-irradiation, put them into stomacher bags, added 200 mL of the washing-out solution, kneaded sufficiently and washed the virus out.
Measured the virus infectivity titer in the wash-out solution and calculated the common logarithm value of the infectivity titer per specimen. Used "Fleece KW-1659A(Blank)" as a comparison control, and carried out the measurements after 2 h and immediately after inoculation.

Type of the light source: fluorescent blacklight lamp 20 W x 2 (TOSHIBA FL20S BLB)
Integrating UV light meter: Hamamatsu Photonics K.K., C10427, H10428
Irradiation condition: 0.25 mW/cm²·2 h (25±5 ℃)
Type of the glass plate for adhesion: borosilicate glass
Type of the glass for moisture retention: borosilicate glass
Wash-out solution: SCDLP medium added with 10% serum
Measurement method of the virus infectivity titer: Plaque assay

[Test virus] Influenza A virus (H1N1): ATCC VR-1469

[Test Result]
Concentration of the test virus: 1.1×10^7 PFU/mL

Name of the sample	Common logarithm value of infectivity titer	Antiviral activity value
FleeceKW-1659A(Blank), immediately after inoculation	6.36	———
FleeceKW-1659A(Blank), after 2 h	5.58	———
Fleece KW-1659A coated with JM nanocomposite material JM-PTEX1 + JM-TTA01	3.30	3.1

ISO 18184:2014(E)

Annex G
(informative)

Antiviral efficacy

G.1 Antiviral perforamance of the products

The antiviral textile products may be evaluated by the categories according to the following table from the result of this test.

Tabelle G.1 — Antivial performance standard

Item	Antiviral efficacy value *Mv*	Standard
Tested textile product	$3{,}0 > Mv \geq 2{,}0$	Small effect
	$Mv \geq 3{,}0$	Full effect

應用：毛毯、航空毯、嬰兒毯

ISO18184
有效通過抗H1N1病毒檢測報告

JM-TTA01與熱融不織布結合取得 ISO18184全球抗病毒 檢測報告

ORIGINAL

Quality Test Report

Test Report No. TW-2010077
(24419006277－1) 1 / 2

Applicant: JM Material Technology Inc.
5th floor of 3, No.40-2, Sec. 1, Minsheng N.Rd., Guishan Dist.,
Taoyuan City 333, Taiwan(R.O.C)

January 27, 2020

Test results to the sample submitted are as follows.

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN
Osaka Functional Textile Testing Center
1-6-24, Chūō, Minato-ku, Osaka-shi
OSAKA 552-0021, JAPAN
TEL:+81-6-6577-0200/FAX:+81-6-6577-0210

Date of reception: January 10, 2020
Item Name/Item number: Thermal Bond non-woven
Quantity: 2

[Test item] A method specified by the applicant (Determination of antiviral activity)
[Reference standard] ISO 18184, JIS R 1702
[Test Method]
Virus solution prepared so that viable account in the MEM medium is about 10^8 PFU/mL or more was diluted 10 times with sterile purified water. Used it as test virus solution.
Inoculated 0.2 mL of the test virus solution on each 5 cm square specimen placed on the 6 cm square glass plates, covered them with 6 cm square glass plate for adhesion and irradiated the light under black light for 2 h.
After 2 h light-irradiation, put them into stomacher bags, added 20 mL of the washing-out solution, kneaded sufficiently and washed the virus out.
Measured the virus infectivity titer in the wash-out solution and calculated the common logarithm value of the infectivity titer per specimen. Used "Thermal Bond non-woven" as a comparison control, and carried out the measurements after 2 h and immediately after inoculation.

Type of the light source: fluorescent blacklight lamp 20 W x 2 (TOSHIBA FL20S BLB)
Integrating UV light meter: Hamamatsu Photonics K.K., C10427, H10428
Irradiation condition: 0.25 mW/cm²·2 h (25±5 °C)
Type of the glass plate for adhesion: borosilicate glass
Type of the glass for moisture retention: borosilicate glass
Wash-out solution: SCDLP medium
Measurement method of the virus infectivity titer: Plaque assay

[Test virus] Influenza A virus (H1N1): ATCC VR-1469
Concentration of the test virus: 1.4 × 10^7 PFU/mL

Name of the sample	Common logarithm value of infectivity titer	Antiviral activity value
Thermal Bond non-woven, immediately after inoculation lg[Va]	6.33	—
Thermal Bond non-woven, after 2 h lg[Vb]	5.72	—
Thermal Bond non-woven coated with JM nanocomposite material JM-TTA02 lg[Vc]	4.30	2.0

- Judgment of test effectiveness of control specimens in ISO18184:2019.
  M = lg[Va] − lg[Vb] ≤ 1.0
- Calculation of antiviral activity value in ISO18184:2019.
  Antiviral activity value = lg[Va] − lg[Vc]

ISO 18184:2014(E)

Annex G
(informative)

Antiviral efficacy

G.1 Antiviral perforamance of the products

The antiviral textile products may be evaluated by the categories according to the following table from the result of this test.

Tabelle G.1 — Antivial performance standard

Item	Antiviral efficacy value *Mv*	Standard
Tested textile product	3,0 > *Mv* ≥ 2,0	Small effect
	Mv ≥ 3,0	Full effect

應用：口罩、隔離衣/防護衣、空氣/汽車濾網、濕紙巾

ISO18184
有效通過抗H1N1病毒檢測報告

JM-TTA01與熱融不織布結合取得 ISO18184全球抗病毒 檢測報告

ORIGINAL

Quality Test Report

Test Report No. TW-2020083
(24419006297-1) 1 / 2

Applicant:KWONG-TAI NANO BIO-TECH Co., Ltd.
4F.-10, No. 1, Ningbo E. St., Zhongzheng Dist.,
Taipei City 100, Taiwan

March 9, 2020

Test results to the sample submitted are as follows.

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN Osaka Functional Textile Testing Center
1-6-24, Chiiko, Minato-ku, Osaka-shi
OSAKA 552-0021, JAPAN
TEL.+81-6-6577-0200/FAX.+81-6-6577-0210

Date of reception: February 20, 2020
Item Name/Item number: Thermal Bond non-woven coated with JM nanocomposite material
Quantity: 2

[Test Item] A method specified by the applicant (Determination of antiviral activity)
[Reference standard] ISO18184, JIS R 1702
[Test Method]
Virus solution prepared so that viable account in the MEM medium is about 10^8 PFU/mL or more was diluted 10 times with sterile purified water. Used it as test virus solution.
Inoculated 0.2 mL of the test virus solution on each 5 cm square specimen placed on the 6 cm square glass plates, covered them with 6 cm square glass plate for adhesion and irradiated the light under black light for 2 h.
After 2 h light-irradiation, put them into stomacher bags, added 20 mL of the washing-out solution, kneaded sufficiently and washed the virus out.
Measured the virus infectivity titer in the wash-out solution and calculated the common logarithm value of the infectivity titer per specimen. Used "Thermal Bond non-woven (Blank)" as a comparison control, and carried out the measurements after 2 h and immediately after inoculation.

Type of the light source: fluorescent blacklight lamp 20 W x 2 (TOSHIBA FL20S BLB)
Integrating UV light meter: Hamamatsu Photonics K.K., C10427, H10428
Irradiation condition: 0.25 mW/cm²·2 h (25±5 ℃)
Type of the glass plate for adhesion: borosilicate glass
Type of the glass for moisture retention: borosilicate glass
Wash-out solution: SCDLP medium
Measurement method of the virus infectivity titer: Plaque assay

[Test virus] Influenza A virus (H1N1): ATCC VR-1469

Concentration of the test virus: 1.6×10^7 PFU/mL

Name of the sample	Common logarithm value of infectivity titer	Antiviral activity value
Thermal Bond non-woven (Blank), immediately after inoculation $\lg[V_o]$	6.47	———
Thermal Bond non-woven (Blank), after 2 h $\lg[V_a]$	5.88	———
Thermal Bond non-woven coated with JM nanocomposite material (JM-TTA01) $\lg[V_a]$	3.08	3.4

* Judgment of test effectiveness of control specimens in ISO18184:2019.
$M = \lg[V_a] - \lg[V_o] \leq 1.0$
* Calculation of antiviral activity value in ISO18184:2019.
Antiviral activity value = $\lg[V_a] - \lg[V_a]$

ISO 18184:2014(E)

Annex G
(informative)

Antiviral efficacy

G.1 Antiviral perforamance of the products

The antiviral textile products may be evaluated by the categories according to the following table from the result of this test.

Tabelle G.1 — Antivial performance standard

Item	Antiviral efficacy value *Mv*	Standard
Tested textile product	$3,0 > Mv \geq 2,0$	Small effect
	$Mv \geq 3,0$	Full effect

應用：口罩、隔離衣/防護衣、空氣/汽車濾網、濕紙巾

ISO18184
有效通過抗H1N1病毒檢測報告

JM-TTA01與SMS不織布結合取得 ISO18184全球抗病毒 檢測報告

Quality Test Report ORIGINAL

Test Report No. TW-2090040

(Page 1 of 1)

Applicant: JM Material Technology Inc.
5th floor of 3, No.40-2, Sec.1, Minsheng N.Rd., Guishan Dist., Taoyuan City 333, Taiwan

November 30, 2020

BOKEN QUALITY EVALUATION INSTITUTE

BOKEN Taiwan Testing Center
SGS Taiwan Ltd.
31, Wu Chyuan Road, New Taipei Industrial Park, Wu Ku Dist., New Taipei City 24886, Taiwan
TEL.+886-2-2299-3279/FAX.+886-2-2299-9630

Test results to submitted sample are as follows.

Reception Date : September 8, 2020

Item Name : SMS Non-Woven Fabric Coated with JM Nanocomposite Material (JM-PTEX+JM-TTA01)

Number of Item : 2

Test Item : The test of the antiviral efficacy

Test Method : ISO 18184 : 2019

Infective titre measurement : Plaque assay

Test virus : Influenza A virus (H3N2) : ATCC VR-1679

Test Result :

			The common logarithm average of infectivity titer value	Antiviral activity value log [Va] − log [Vc]
Standard cloth	Immediately after inoculation	log [Va]	6.56	———
	After 2 h	log [Vc]	5.76	———
SMS Non-Woven Fabric Coated with JM Nanocomposite Material (JM-PTEX+JM-TTA01)		log [Vc]	3.30	3.3

Remarks :
- The composition of the submitted sample may influence the infectivity. Therefore, 20 ml eluent was added to the test sample, and dilute 10 times for infectivity determination.
- Efficacy of Antiviral activity value (Informative):
  Good effect : 3.0> Antiviral activity value ≧ 2.0
  Excellent effect : Antiviral activity value ≧ 3.0
- Tested by Boken Osaka laboratory.

BOKEN QUALITY EVALUATION INSTITUTE
Taiwan Testing Center

Supervised by H. Yamamoto

Notice : This test result is applied to the submitted sample, not to the lot.
Unauthorized reproduction, in whole or in part, is strictly prohibited.

ISO 18184:2014(E)

Annex G
(informative)

Antiviral efficacy

G.1 Antiviral perforamance of the products

The antiviral textile products may be evaluated by the categories according to the following table from the result of this test.

Tabelle G.1 — Antivial performance standard

Item	Antiviral efficacy value *Mv*	Standard
Tested textile product	$3,0 > Mv \geq 2,0$	Small effect
	$Mv \geq 3,0$	Full effect

應用：隔離衣、防護衣

ISO18184
有效通過抗H1N1病毒檢測報告

JM-TTA01與抗病毒紡織品結合取得 ISO18184全球抗病毒 檢測報告

Quality Test Report

ORIGINAL

Test Report No. TW-2090040A

(Page 1 of 1)

Applicant: JM Material Technology Inc.
5th floor of 3, No.40-2, Sec.1, Minsheng N.Rd., Guishan Dist., Taoyuan City 333, Taiwan

November 30, 2020

BOKEN QUALITY EVALUATION INSTITUTE

BOKEN Taiwan Testing Center
SGS Taiwan Ltd.
31, Wu Chyuan Road, New Taipei Industrial Park, Wu Ku Dist., New Taipei City 24886, Taiwan
TEL.+886-2-2299-3279/FAX.+886-2-2299-9630

Test results to submitted sample are as follows.

Reception Date : September 8, 2020

Item Name : Textile Coated with JM Nanocomposite Material (TTA) (JM-PTEX+JM-TTA01)

Number of Item : 2

Test Item : The test of the antiviral efficacy

Test Method : ISO 18184 : 2019

Infective titre measurement : Plaque assay

Test virus : Influenza A virus (H3N2) : ATCC VR-1679

Test Result :

			The common logarithm average of infectivity titer value	Antiviral activity value log [Va] − log [Vc]
Standard cloth	Immediately after inoculation	log [Va]	6.56	———
	After 2 h	log [Vb]	5.76	———
Textile Coated with JM Nanocomposite Material (TTA) (JM-PTEX+JM-TTA01)		log [Vc]	3.30	3.3

Remarks :
*The composition of the submitted sample may influence the infectivity. Therefore, 20 ml eluent was added to the test sample, and dilute 10 times for Infectivity determination.
*Efficacy of Antiviral activity value (Informative):
Good effect : 3.0> Antiviral activity value ≧ 2.0
Excellent effect : Antiviral activity value ≧ 3.0
* Tested by Boken Osaka laboratory.

BOKEN QUALITY EVALUATION INSTITUTE
Taiwan Testing Center

Supervised by H. Yamamoto

Notice – This test result is applied to the submitted sample, not to the lot.
Unauthorized reproduction, in whole or in part, is strictly prohibited.

ISO 18184:2014(E)

Annex G
(informative)

Antiviral efficacy

G.1 Antiviral perforamance of the products

The antiviral textile products may be evaluated by the categories according to the following table from the result of this test.

Tabelle G.1 — Antivial performance standard

Item	Antiviral efficacy value *Mv*	Standard
Tested textile product	$3{,}0 > Mv \geq 2{,}0$	Small effect
	$Mv \geq 3{,}0$	Full effect

應用：隔離衣、防護衣

ISO18184
有效通過抗H1N1病毒檢測報告

JM-TTA01與熱融不織布結合取得 ISO18184全球抗病毒 檢測報告

Quality Test Report ORIGINAL

Test Report No. TW-2120028
1 / 2

Applicant: YAN JIE CO., LTD
9F.-5, NO. 77, XINPU 6TH ST., TAOYUAN DIST.,
TAOYUAN CITY 33044, TAIWAN (R.O.C.)

April 28 ,2021

Test results to the sample submitted are as follows.

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN
Taiwan Testing Center
SGS Taiwan Ltd.
31, Wu Chyuan Road, New Taipei Industrial Park,
Wu Ku Dist., New Taipei City 24886, Taiwan
TEL:+886-2-2299-3279/FAX:+886-2-2299-9630

Date of reception: February 2 , 2021
Item Name/Item number: :Thermal Bond non-woven coated with JM nanocomposite material
Quantity: 2

[Test Item] A method specified by the applicant (Determination of antiviral activity)
[Reference standard] ISO18184, JIS R 1702
[Test Method]
Virus solution prepared so that viable account in the MEM medium is about 10^8 PFU/mL or more was diluted 10 times with sterile purified water. Used it as test virus solution.
Inoculated 0.2 mL of the test virus solution on each 5 cm square specimen placed on the 6cm square glass plates, covered them with 6 cm square glass plate for adhesion and irradiated the light under black light for 2 h.
After 2 h light-irradiation, put them into stomacher bags, added 20 mL of the washing-out solution, kneaded sufficiently and washed the virus out.
Measured the virus infectivity titer in the wash-out solution and calculated the common logarithm value of the infectivity titer per specimen. Used "Thermal Bond non-woven (Blank)" as a comparison control, and carried out the measurements after 2 h and immediately after inoculation.

[Test Result]
Concentration of the test virus: 2.2 × 10^7 PFU/mL

Name of the sample	Common logarithm value of infectivity titer	Antiviral activity value
Thermal Bond non-woven (Blank), immediately after inoculation lg [Va]	6.70	———
Thermal Bond non-woven (Blank), after 2 h lg [Vb]	5.88	———
Thermal Bond non-woven coated with JM nanocomposite material (JM-TTA01) lg [Vc]	4.50	2.2

* Judgment of test effectiveness of control specimens in ISO18184:2019.
M= lg [Va]- lg [Vb] ≤ 1.0
* Calculation of antiviral activity value in ISO18184:2019.
Antiviral activity value =lg [Va]−lg [Vc]
* Tested by Boken Osaka laboratory.

ISO 18184:2014(E)

Annex G
(informative)

Antiviral efficacy

G.1 Antiviral perforamance of the products

The antiviral textile products may be evaluated by the categories according to the following table from the result of this test.

Tabelle G.1 — Antivial performance standard

Item	Antiviral efficacy value *Mv*	Standard
Tested textile product	3,0 > *Mv* ≥ 2,0	Small effect
	Mv ≥ 3,0	Full effect

應用：口罩、隔離衣/防護衣、空氣/汽車濾網、濕紙巾

ISO18184
有效通過抗H1N1病毒檢測報告

JM-TTA01與玻璃結合取得 ISO21702全球抗病毒 檢測報告

Quality Test Report

ORIGINAL

Test Report No. TW-2010078E
1 / 2

Applicant: JM Material Technology Inc.
5th floor of 3, No.40-2, Sec.1, Minsheng N.Rd.,
Guishan Dist., Taoyuan City 333, Taiwan (R.O.C)

May. 20, 2020

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN
Taiwan Testing Center
SGS Taiwan Ltd.
31, Wu Chyuan Road, New Taipei Industrial Park,
Wu Ku Dist., New Taipei City 24888, Taiwan
TEL:+886-2-2299-3279/FAX:+886-2-2299-3630

Test results to the sample submitted are as follows.

Date of reception: March 27, 2020
Item Name/Item number: JM nanocomposite material
Quantity: 2

[Test item] A method specified by the applicant (Determination of antiviral activity)
[Reference standard] ISO21702, JIS R 1702
[Test method]
Virus solution prepared so that viable account in the MEM medium is about 10^5 PFU/mL or more was diluted 10 times with sterile purified water. Used it as test virus solution.
Inoculated 0.4 mL of the test virus solution on each 5 cm square specimen placed, covered them with 4 cm cover film and irradiated the light under black light for 4 h.
After 4 h light-irradiation, put them into stomacher bags, added 10 mL of the washing-out solution, kneaded sufficiently and washed the virus out.
Measured the virus infectivity titer in the wash-out solution and calculated the common logarithm value of the infectivity titer per cm^2 of test specimen. Used "Glass (Blank)" as a comparison control, and carried out the measurements after designed period and immediately after inoculation.

Type of the light source: fluorescent blacklight lamp 20 W x 2 (TOSHIBA FL20S BLB)
Integrating UV light meter: Hamamatsu Photonics K.K., C10427, H10428
Irradiation condition: 0.25 mW/cm^2·4 h (25±5 °C)
Type of the cover film: film sheet for overhead projector
Type of the glass for moisture retention: borosilicate glass
Wash-out solution: SCDLP medium
Measurement method of the virus infectivity titer: Plaque assay

[Test virus] Influenza A virus (H1N1): ATCC VR-1469

[Test Result]
Concentration of the test virus: 1.6×10^7 PFU/mL

Name of the sample	Common logarithm value of infectivity titer	Antiviral activity value
Glass (Blank), immediately after inoculation [U_0]	5.63	———
Glass (Blank), after 4 h [U_t]	4.76	———
JM nanocomposite material (JM-TTA01) [A]	2.54	2.2

* Calculation of antiviral activity value in ISO21702:2019.
  Antiviral activity value = $U_t - A$
* Tested by Boken Osaka laboratory.

Test efficacy reference table

ISO 21702:2019

Antiviral performance of the products

Antiviral performance of plastic and non-porous surface evaluation

Reference number: ISO 18184

Item	Antiviral efficacy value Mv	Standard
Tested textile product	3.0>Mv≥2.0	Small effect
	Mv≥3.0	Full effect

應用：醫療、3C、工控、汽車面板

ISO21702
有效通過抗H1N1病毒檢測報告

JM-TTA01與鍍面金屬鋼板取得 ISO21702全球抗病毒 檢測報告

ORIGINAL

Quality Test Report

Test Report No. TW-1990049
(24419003285-1) 1 / 2

Applicant: Shye Maw Steel Co., Ltd.
8 Bengong West Road, Gangshan Dist.,
Kaohsiung 82059 Taiwan

September 30, 2019

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN Osaka Functional Textile Testing Center
1-6-24, Chikko, Minato-ku, Osaka-shi
OSAKA 552-0021, JAPAN
TEL.+81-6-6577-0200/FAX.+81-6-6577-0210

Test results to the sample submitted are as follows.

Date of reception: September 6, 2019
Item Name/Item number: Metal panel
Quantity: 2

[Test Item] A method specified by the applicant (Determination of antiviral activity)
[Reference standard] ISO 21702, JIS R 1702
[Test Method]
Virus solution prepared so that viable account in the MEM medium is about 10^8 PFU/mL or more was diluted 10 times with sterile purified water. Used it as test virus solution.
Inoculated 0.4 mL of the test virus solution on each 5 cm square specimen placed, covered them with 4 cm cover film and irradiated the light under black light for 4 h.
After 4 h light-irradiation, put them into stomacher bags, added 10 mL of the washing-out solution, kneaded sufficiently and washed the virus out.
Measured the virus infectivity titer in the wash-out solution and calculated the common logarithm value of the infectivity titer per cm^2 of test specimen. Used "Metallic coated metal panel(Blank)" as a comparison control, and carried out the measurements after 4 h and immediately after inoculation.

Type of the light source: fluorescent blacklight lamp 20 W x 2 (TOSHIBA FL20S BLB)
Integrating UV light meter: Hamamatsu Photonics K.K., C10427, H10428
Irradiation condition: 0.25 mW/cm^2·4 h (25±5 ℃)
Type of the cover film: film sheet for overhead projector
Type of the glass for moisture retention: borosilicate glass
Wash-out solution: SCDLP medium
Measurement method of the virus infectivity titer: Plaque assay

[Test virus] Influenza A virus (H1N1): ATCC VR-1469

[Test Result]
Concentration of the test virus: 1.3 × 10^7 PFU/mL

Name of the sample	Common logarithm value of infectivity titer	Antiviral activity value
Metallic coated metal panel(Blank), immediately after inoculation	5.46	———
Metallic coated metal panel(Blank), after 4 h	3.51	———
Metallic coated metal panel (coated with JM nanocomposite material) JM-TTA01	<0.80	2.7

Test efficacy reference table

ISO 21702:2019

Antiviral performance of the products

Antiviral performance of plastic and non-porous surface evaluation

Reference number: ISO 18184

Item	Antiviral efficacy value Mv	Standard
Tested textile product	3.0>Mv≥2.0	Small effect
	Mv≥3.0	Full effect

應用：醫療、公共建設通風管及建材

ISO21702
有效通過抗H1N1病毒檢測報告

JM-TTA01與彩色烤漆金屬鋼板結合取得 ISO21702全球抗病毒 檢測報告

ORIGINAL

Quality Test Report

Test Report No. TW-1990048
(24419003284-1) 1 / 2

Applicant: Shye Maw Steel Co., Ltd.
8 Bengong West Road, Gangshan Dist.,
Kaohsiung 82059 Taiwan

September 30, 2019

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN Osaka Functional Textile Testing Center
1-8-24, Chikko, Minato-ku, Osaka-shi
OSAKA 552-0021, JAPAN
TEL.+81-6-6577-0200/FAX.+81-6-6577-0210

Test results to the sample submitted are as follows.

Date of reception: September 6, 2019
Item Name/Item number: Metal panel
Quantity: 2

[Test Item] A method specified by the applicant (Determination of antiviral activity)
[Reference standard] ISO 21702, JIS R 1702
[Test Method]
Virus solution prepared so that viable account in the MEM medium is about 10^8 PFU/mL or more was diluted 10 times with sterile purified water. Used it as test virus solution.
Inoculated 0.4 mL of the test virus solution on each 5 cm square specimen placed, covered them with 4 cm cover film and irradiated the light under black light for 4 h.
After 4 h light-irradiation, put them into stomacher bags, added 10 mL of the washing-out solution, kneaded sufficiently and washed the virus out.
Measured the virus infectivity titer in the wash-out solution and calculated the common logarithm value of the infectivity titer per cm^2 of test specimen. Used "Color paint coated metal panel(Blank)" as a comparison control, and carried out the measurements after 4 h and immediately after inoculation.

Type of the light source: fluorescent blacklight lamp 20 W x 2 (TOSHIBA FL20S BLB)
Integrating UV light meter: Hamamatsu Photonics K.K., C10427, H10428
Irradiation condition: 0.25 mW/cm^2·4 h (25±5 ℃)
Type of the cover film: film sheet for overhead projector
Type of the glass for moisture retention: borosilicate glass
Wash-out solution: SCDLP medium
Measurement method of the virus infectivity titer: Plaque assay

[Test virus] Influenza A virus (H1N1): ATCC VR-1469

Name of the sample	Common logarithm value of infectivity titer	Antiviral activity value
Color paint coated metal panel(Blank), immediately after inoculation	5.46	———
Color paint coated metal panel(Blank), after 4 h	4.89	———
Color paint coated metal panel (coated with JM nanocomposite material) JM-TTA01	2.50	2.3

Test efficacy reference table

ISO 21702:2019

Antiviral performance of the products

Antiviral performance of plastic and non-porous surface evaluation

Reference number: ISO 18184

Item	Antiviral efficacy value Mv	Standard
Tested textile product	3.0>Mv≥2.0	Small effect
	Mv≥3.0	Full effect

應用：家電用品、建材

ISO21702
有效通過抗H1N1病毒檢測報告

JM-TTA01與大理石結合取得 ISO21702全球抗病毒 檢測報告

ORIGINAL

Quality Test Report

Test Report No. TW-2010080
(24419006279-1) 1 / 2

Applicant: WORLDWIDE GRANITE CO., LTD
No. 8, Mei-Gong Rd. Hualien City, Taiwan

February 3, 2020

Test results to the sample submitted are as follows.

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN Osaka Functional Textile Testing Center
1-6-24, Chiko, Minato-ku, Osaka-shi
OSAKA 552-0021, JAPAN
TEL.+81-6-6577-0200/FAX.+81-6-6577-0210

Date of reception: January 10, 2020
Item Name/Item number: Marble
Quantity: 3

[Test Item] A method specified by the applicant (Determination of antiviral activity)
[Reference standard] ISO 21702, JIS R 1702
[Test Method]
Virus solution prepared so that viable account in the MEM medium is about 10^8 PFU/mL or more was diluted 10 times with sterile purified water. Used it as test virus solution.
Inoculated 0.4 mL of the test virus solution on each 5 cm square specimen placed, covered them with 4 cm cover film and irradiated the light under black light for 4 h.
After 4 h light-irradiation, put them into stomacher bags, added 10 mL of the washing-out solution, kneaded sufficiently and washed the virus out.
Measured the virus infectivity titer in the wash-out solution and calculated the common logarithm value of the infectivity titer per cm^2 of test specimen. Used "Marble" as a comparison control, and carried out the measurements after 4 h and immediately after inoculation.

Type of the light source: fluorescent blacklight lamp 20 W x 2 (TOSHIBA FL20S BLB)
Integrating UV light meter: Hamamatsu Photonics K.K., C10427, H10428
Irradiation condition: 0.25 mW/cm^2·4 h (25±5 ℃)
Type of the cover film: film sheet for overhead projector
Type of the glass for moisture retention: borosilicate glass
Wash-out solution: SCDLP medium
Measurement method of the virus infectivity titer: Plaque assay

[Test virus] Influenza A virus (H1N1): ATCC VR-1469
Concentration of the test virus: 1.4×10^7 PFU/mL

Name of the sample	Common logarithm value of infectivity titer	Antiviral activity value
Marble, immediately after inoculation [U_0]	5.44	———
Marble, after 4 h [U_t]	3.43	———
Marble coated with JM nanocomposite material 1 JM-PMWP3-TXA1+JM-TTA01 [A_t]	<0.80	2.6

* Calculation of antiviral activity value in ISO21702:2019.
Antiviral activity value = $U_t - A_t$

Test efficacy reference table

ISO 21702:2019

Antiviral performance of the products

Antiviral performance of plastic and non-porous surface evaluation

Reference number: ISO 18184

Item	Antiviral efficacy value Mv	Standard
Tested textile product	3.0>Mv≥2.0	Small effect
	Mv≥3.0	Full effect

應用：裝飾建材、廚具、家具

ISO21702
有效通過抗H1N1病毒檢測報告

JM-TTA01與花崗岩結合取得 ISO21702全球抗病毒 檢測報告

ORIGINAL

Quality Test Report

Test Report No. TW-2010081
(24419006281-1) 1 / 2

Applicant: WORLDWIDE GRANITE CO., LTD
No. 8, Mei-Gong Rd. Hualien City, Taiwan

February 3, 2020

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN
Osaka Functional Textile Testing Center
1-6-24, Chiko, Minato-ku, Osaka-shi
OSAKA 552-0021, JAPAN
TEL.+81-6-6577-0200/FAX.+81-6-6577-0210

Test results to the sample submitted are as follows.

Date of reception: January 10, 2020
Item Name/Item number: Granite
Quantity: 3

[Test Item] A method specified by the applicant (Determination of antiviral activity)
[Reference standard] ISO 21702, JIS R 1702
[Test Method]
Virus solution prepared so that viable account in the MEM medium is about 10^8 PFU/mL or more was diluted 10 times with sterile purified water. Used it as test virus solution.
Inoculated 0.4 mL of the test virus solution on each 5 cm square specimen placed, covered them with 4 cm cover film and irradiated the light under black light for 4 h.
After 4 h light-irradiation, put them into stomacher bags, added 10 mL of the washing-out solution, kneaded sufficiently and washed the virus out.
Measured the virus infectivity titer in the wash-out solution and calculated the common logarithm value of the infectivity titer per cm^2 of test specimen. Used "Granite" as a comparison control, and carried out the measurements after 4 h and immediately after inoculation.

Type of the light source: fluorescent blacklight lamp 20 W x 2 (TOSHIBA FL20S BLB)
Integrating UV light meter: Hamamatsu Photonics K.K., C10427, H10428
Irradiation condition: 0.25 mW/cm^2·4 h (25±5 ℃)
Type of the cover film: film sheet for overhead projector
Type of the glass for moisture retention: borosilicate glass
Wash-out solution: SCDLP medium
Measurement method of the virus infectivity titer: Plaque assay

[Test virus] Influenza A virus (H1N1): ATCC VR-1469
Concentration of the test virus: 1.4×10^7 PFU/mL

Name of the sample	Common logarithm value of infectivity titer	Antiviral activity value
Granite, immediately after inoculation [U_0]	5.45	———
Granite, after 4 h [U_t]	3.48	———
Granite coated with JM nanocomposite material 1 JM-PMWP3-TXA1+JM-TTA01 [A]	<0.80	2.6
Granite coated with JM nanocomposite material 2 JM-PMWP3-TXA1+JM-TTA01 [A]	<0.80	2.6

...al activity value in ISO21702:2019.
... $U_t - A$

Test efficacy reference table

ISO 21702:2019

Antiviral performance of the products

Antiviral performance of plastic and non-porous surface evaluation

Reference number: ISO 18184

Item	Antiviral efficacy value Mv	Standard
Tested textile product	3.0>Mv≥2.0	Small effect
	Mv≥3.0	Full effect

應用：裝飾建材、廚具、家具

ISO21702
有效通過抗H1N1病毒檢測報告

JM-TTA01與聚碳酸脂結合取得 ISO21702全球抗病毒 檢測報告

Quality Test Report 中間報告

Test Report No. TW-2060015A
1 / 2

Applicant: Ming Fong Technology Co.,Ltd.
No. 13, Zhongshan RD., Tucheng Dist.,
New Taipei City 23680, Taiwan

November 13 , 2020

Test results to the sample submitted are as follows.

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN
Taiwan Testing Center
SGS Taiwan Ltd.
31, Wu Chyuan Road, New Taipei Industrial Park,
Wu Ku Dist., New Taipei City 24886, Taiwan
TEL:+886-2-2299-3279/FAX:+886-2-2299-9630

Date of reception: June 30 , 2020
Item Name/Item number: :Polycarbonate coated with JM nanocomposite material
Quantity: 2

[Test Item] A method specified by the applicant (Determination of antiviral activity)
[Reference standard] ISO21702, JIS R 1702
[Test Method]
Virus solution prepared so that viable account in the MEM medium is about 10^6 PFU/mL or more was diluted 10 times with sterile purified water. Used it as test virus solution.
Inoculated 0.4 mL of the test virus solution on each 5 cm square specimen placed, covered them with 4 cm cover film and irradiated the light under black light for 4 h.
After 4 h light-irradiation, put them into stomacher bags, added 10 mL of the washing-out solution, kneaded sufficiently and washed the virus out.
Measured the virus infectivity titer in the wash-out solution and calculated the common logarithm value of the infectivity titer per cm^2 of test specimen. Used "Polycarbonate (Blank)" as a comparison control, and carried out the measurements after 4 h and immediately after inoculation.

[Test Result]
Concentration of the test virus: 2.5×10^7 PFU/mL

Name of the sample	Common logarithm value of infectivity titer	Antiviral activity value
Polycarbonate (Blank), immediately after inoculation [U_0]	5.72	———
Polycarbonate (Blank), after 4 h [U_t]	5.30	———
Polycarbonate coated with JM nanocomposite material (JM-TTA01) Sample B [A_t]	2.82	2.4

* Calculation of antiviral activity value in ISO21702:2019.
Antiviral activity value = $U_t - A_t$

* Tested by Boken Osaka laboratory.

Test efficacy reference table

ISO 21702:2019

Antiviral performance of the products

Antiviral performance of plastic and non-porous surface evaluation

Reference number: ISO 18184

Item	Antiviral efficacy value Mv	Standard
Tested textile product	3.0>Mv≥2.0	Small effect
	Mv≥3.0	Full effect

應用：3C、醫療器材、觸控筆

ISO21702
有效通過抗H1N1病毒檢測報告

JM-TTA01與鋼化玻璃結合取得 ISO21702全球抗病毒 檢測報告

Quality Test Report 中間報告

Test Report No. TW-2060018A
1 / 2

Applicant: Ming Fong Technology Co.,Ltd.
No. 13, Zhongshan RD., Tucheng Dist.,
New Taipei City 23680, Taiwan

November 13 , 2020

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN Taiwan Testing Center
SGS Taiwan Ltd.
31, Wu Chyuan Road, New Taipei Industrial Park,
Wu Ku Dist., New Taipei City 24886, Taiwan
TEL:+886-2-2299-3279/FAX:+886-2-2299-9630

Test results to the sample submitted are as follows.

Date of reception: June 30 , 2020
Item Name/Item number: :Tempered Glass coated with JM nanocomposite material
Quantity: 2

[Test Item] A method specified by the applicant (Determination of antiviral activity)
[Reference standard] ISO21702, JIS R 1702
[Test Method]
Virus solution prepared so that viable account in the MEM medium is about 10^5 PFU/mL or more was diluted 10 times with sterile purified water. Used it as test virus solution.
Inoculated 0.4 mL of the test virus solution on each 5 cm square specimen placed, covered them with 4 cm cover film and irradiated the light under black light for 4 h.
After 4 h light-irradiation, put them into stomacher bags, added 10 mL of the washing-out solution, kneaded sufficiently and washed the virus out.
Measured the virus infectivity titer in the wash-out solution and calculated the common logarithm value of the infectivity titer per cm^2 of test specimen. Used "Tempered Glass (Blank)" as a comparison control, and carried out the measurements after 4 h and immediately after inoculation.

[Test Result]
Concentration of the test virus: 2.5×10^7 PFU/mL

Name of the sample	Common logarithm value of infectivity titer	Antiviral activity value
Tempered Glass (Blank), immediately after inoculation [U_0]	5.83	———
Tempered Glass (Blank), after 4 h [U_t]	5.06	———
Tempered Glass coated with JM nanocomposite material (JM-TTA01) Sample H [A_t]	2.56	2.5

* Calculation of antiviral activity value in ISO21702:2019.
Antiviral activity value = $U_t - A_t$

* Tested by Boken Osaka laboratory.

Test efficacy reference table

ISO 21702:2019

Antiviral performance of the products

Antiviral performance of plastic and non-porous surface evaluation

Reference number: ISO 18184

Item	Antiviral efficacy value Mv	Standard
Tested textile product	3.0>Mv≥2.0	Small effect
	Mv≥3.0	Full effect

應用：3C、工控面板、建材

ISO21702
有效通過抗H1N1病毒檢測報告

JM-TTA01與熱塑性聚氨彈性體結合取得 ISO21702全球抗病毒 檢測報告

Quality Test Report

中間報告

Test Report No. TW-2060019A
1 / 2

Applicant: Ming Fong Technology Co.,Ltd.
No.13, Zhongshan RD., Tucheng Dist.,
New Taipei City 23680, Taiwan

November 13 , 2020

Test results to the sample submitted are as follows.

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN
Taiwan Testing Center
SGS Taiwan Ltd.
31, Wu Chyuan Road, New Taipei Industrial Park,
Wu Ku Dist., New Taipei City 24886, Taiwan
TEL:+886-2-2299-3279 FAX:+886-2-2299-9630

Date of reception: June 30 , 2020
Item Name/Item number: :Thermoplastic Polyurethanes coated with JM nanocomposite material
Quantity: 2

[Test Item] A method specified by the applicant (Determination of antiviral activity)
[Reference standard] ISO21702, JIS R 1702
[Test Method]
Virus solution prepared so that viable account in the MEM medium is about 10^6 PFU/mL or more was diluted 10 times with sterile purified water. Used it as test virus solution.
Inoculated 0.4 mL of the test virus solution on each 5 cm square specimen placed, covered them with 4 cm cover film and irradiated the light under black light for 4 h.
After 4 h light-irradiation, put them into stomacher bags, added 10 mL of the washing-out solution, kneaded sufficiently and washed the virus out.
Measured the virus infectivity titer in the wash-out solution and calculated the common logarithm value of the infectivity titer per cm^2 of test specimen. Used "Thermoplastic Polyurethanes (Blank)" as a comparison control, and carried out the measurements after 4 h and immediately after inoculation.

[Test Result]
Concentration of the test virus: 2.5×10^7 PFU/mL

Name of the sample	Common logarithm value of infectivity titer	Antiviral activity value
Thermoplastic Polyurethanes (Blank), immediately after inoculation [U_0]	5.85	———
Thermoplastic Polyurethanes (Blank), after 4 h [U_t]	5.30	———
Thermoplastic Polyurethanes coated with JM nanocomposite material (JM-TTA01) Sample D [A_t]	2.98	2.3

* Calculation of antiviral activity value in ISO21702:2019.
Antiviral activity value = $U_t - A_t$
* Tested by Boken Taoyuan laboratory.

Test efficacy reference table

ISO 21702:2019

Antiviral performance of the products

Antiviral performance of plastic and non-porous surface evaluation

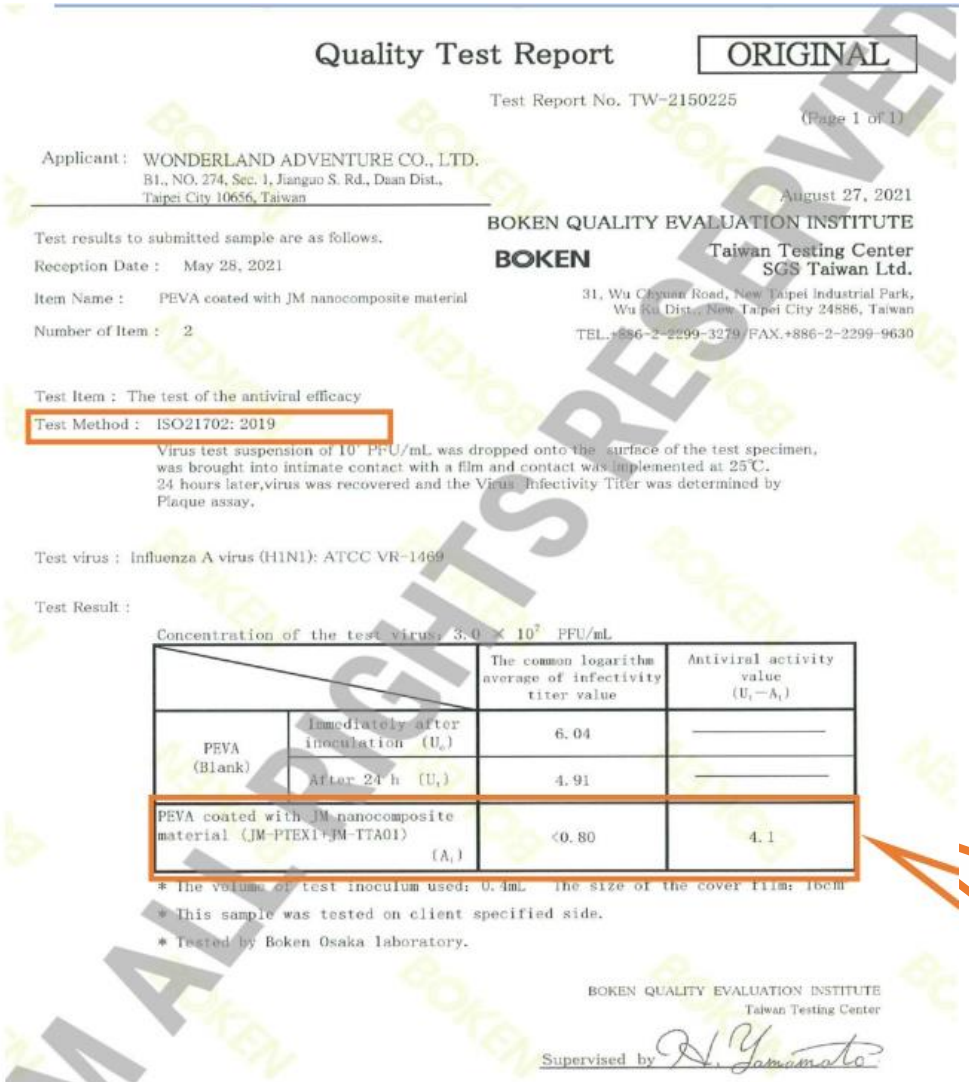
Reference number: ISO 18184

Item	Antiviral efficacy value Mv	Standard
Tested textile product	3.0>Mv≥2.0	Small effect
	Mv≥3.0	Full effect

應用：3C、觸控筆、醫療器材

ISO21702
有效通過抗H1N1病毒檢測報告

JM-TTA01與PEVA結合取得 ISO21702全球抗病毒 檢測報告



Quality Test Report ORIGINAL

Test Report No. TW-2150225

(Page 1 of 1)

Applicant : WONDERLAND ADVENTURE CO., LTD.
B1., NO. 274, Sec. 1, Jianguo S. Rd., Daan Dist.,
Taipei City 10656, Taiwan

August 27, 2021

BOKEN QUALITY EVALUATION INSTITUTE
BOKEN
Taiwan Testing Center
SGS Taiwan Ltd.
31, Wu Chyuan Road, New Taipei Industrial Park,
Wu Ku Dist., New Taipei City 24886, Taiwan
TEL.+886-2-2299-3279 FAX.+886-2-2299-9630

Test results to submitted sample are as follows.

Reception Date : May 28, 2021

Item Name : PEVA coated with JM nanocomposite material

Number of Item : 2

Test Item : The test of the antiviral efficacy

Test Method : ISO21702: 2019

Virus test suspension of 10^7 PFU/mL was dropped onto the surface of the test specimen, was brought into intimate contact with a film and contact was implemented at 25℃. 24 hours later,virus was recovered and the Virus Infectivity Titer was determined by Plaque assay.

Test virus : Influenza A virus (H1N1): ATCC VR-1469

Test Result :

Concentration of the test virus: 3.0×10^7 PFU/mL

		The common logarithm average of infectivity titer value	Antiviral activity value ($U_t - A_t$)
PEVA (Blank)	Immediately after inoculation (U_0)	6.04	———
	After 24 h (U_t)	4.91	———
PEVA coated with JM nanocomposite material (JM-PTEX1+JM-TTA01) (A_t)		<0.80	4.1

* The volume of test inoculum used: 0.4mL The size of the cover film: 16cm
* This sample was tested on client specified side.
* Tested by Boken Osaka laboratory.

BOKEN QUALITY EVALUATION INSTITUTE
Taiwan Testing Center
Supervised by

* This test result is applied to the submitted sample, not to the lot.
* Unauthorized reproduction, in whole or

Test efficacy reference table

ISO 21702:2019

Antiviral performance of the products

Antiviral performance of plastic and non-porous surface evaluation

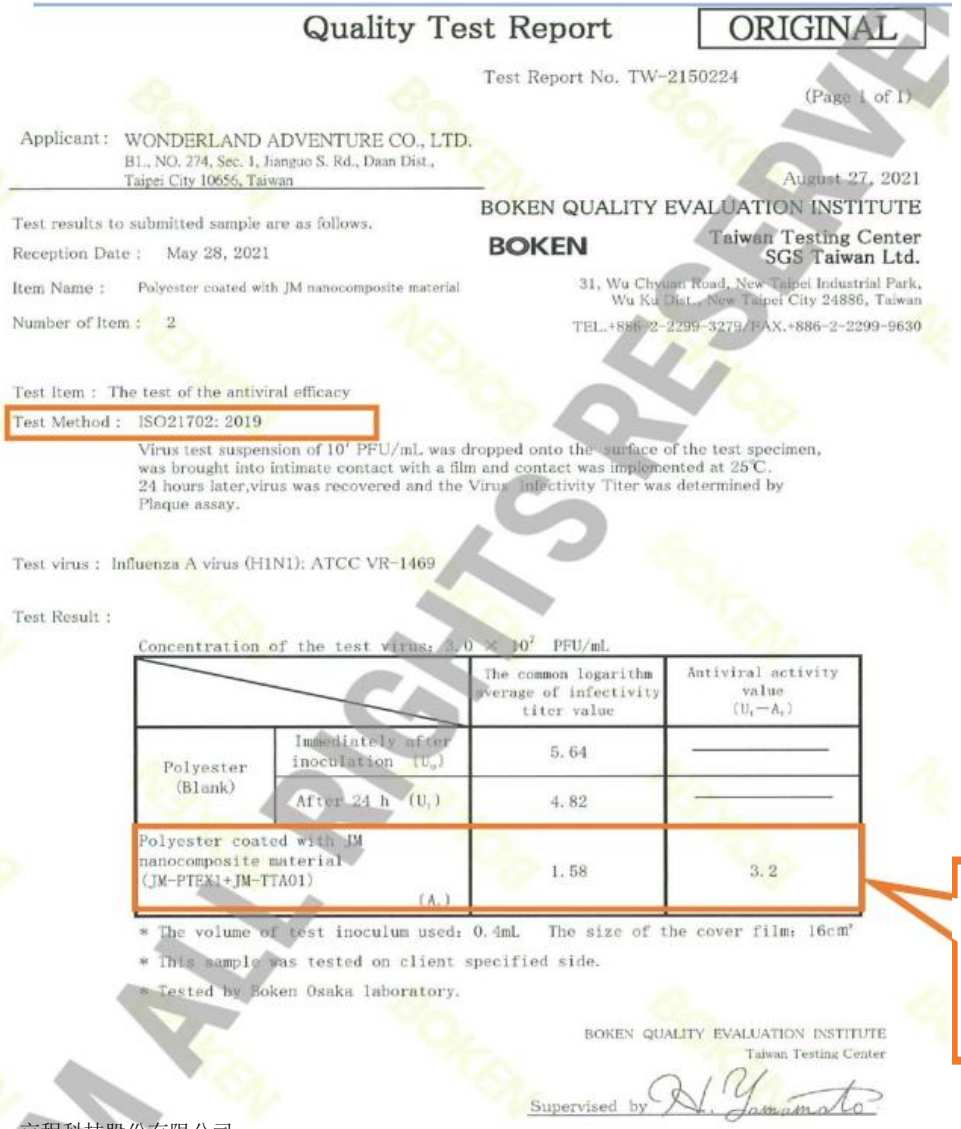
Reference number: ISO 18184

Item	Antiviral efficacy value Mv	Standard
Tested textile product	3.0>Mv≥2.0	Small effect
	Mv≥3.0	Full effect

應用：大體袋

ISO21702
有效通過抗H1N1病毒檢測報告

JM-TTA01與聚脂纖維結合取得 ISO21702全球抗病毒 檢測報告



Quality Test Report ORIGINAL

Test Report No. TW-2150224

(Page 1 of 1)

Applicant: WONDERLAND ADVENTURE CO., LTD.
B1., NO. 274, Sec. 1, Jianguo S. Rd., Daan Dist.,
Taipei City 10656, Taiwan

August 27, 2021

BOKEN QUALITY EVALUATION INSTITUTE

Test results to submitted sample are as follows.

Reception Date : May 28, 2021

BOKEN

Taiwan Testing Center
SGS Taiwan Ltd.

Item Name : Polyester coated with JM nanocomposite material

31, Wu Chyuan Road, New Taipei Industrial Park,
Wu Ku Dist., New Taipei City 24886, Taiwan

Number of Item : 2

TEL:+886-2-2299-3279 FAX:+886-2-2299-9630

Test Item : The test of the antiviral efficacy

Test Method : ISO21702: 2019

Virus test suspension of 10^7 PFU/mL was dropped onto the surface of the test specimen, was brought into intimate contact with a film and contact was implemented at 25℃. 24 hours later,virus was recovered and the Virus Infectivity Titer was determined by Plaque assay.

Test virus : Influenza A virus (H1N1): ATCC VR-1469

Test Result :

Concentration of the test virus: 3.0×10^7 PFU/mL

		The common logarithm average of infectivity titer value	Antiviral activity value ($U_t - A_t$)
Polyester (Blank)	Immediately after inoculation (U_0)	5.64	———
	After 24 h (U_t)	4.82	———
Polyester coated with JM nanocomposite material (JM-PTEX1+JM-TTA01) (A_t)		1.58	3.2

* The volume of test inoculum used: 0.4mL The size of the cover film: 16cm²
* This sample was tested on client specified side.
* Tested by Boken Osaka laboratory.

BOKEN QUALITY EVALUATION INSTITUTE
Taiwan Testing Center

Supervised by N. Yamamoto

It is applied to the submitted sample as received.

Unauthorized reproduction, in whole or in part, is strictly prohibited.

Test efficacy reference table

ISO 21702:2019

Antiviral performance of the products

Antiviral performance of plastic and non-porous surface evaluation

Reference number: ISO 18184

Item	Antiviral efficacy value Mv	Standard
Tested textile product	3.0>Mv≥2.0	Small effect
	Mv≥3.0	Full effect

應用：防疫帳篷

ISO21702
有效通過抗H1N1病毒檢測報告

生機生技 生機無限

lifenergy bio

the immune health company

THANK YOU !