Quantum-ION®

Antimicrobial Coating Technology
殺菌証明書他

Institut Kesihatan dan Perubatan Komuniti
Institute of Health and Community Medicine

www.unimas.my

NOTE OF CERTIFICATION

DATE: 18 February 2020

This note serves to certify the following:

1. We have tested the solution ***Quantum-Ion*** under laboratory conditions and found that ***Quantum-Ion*** was 99.99% efficient in degrading the human coronavirus OC43 (CoV-OC43) and viral RNA when exposed to direct contact with the virus.

Professor Dr David Perera
Director

MSC-Status

94300 Kota Samarahan, Sarawak, MALAYSIA | Tel + 60 82 581 000 | Faks + 60 82 671 785

テストレポート　1

シオンはコロナウイルスの99.99%の殺菌を達成しました

DATE: 18 February 2020

This note serves to certify the following:

1. We have tested the solution ***Quantum-Ion*** under laboratory conditions and found that ***Quantum-Ion*** was 99.99% efficient in degrading the human coronavirus OC43 (CoV-OC43) and viral RNA when exposed to direct contact with the virus.

Institut Kesihatan dan Perubatan Komuniti
Institute of Health and Community Medicine

UNIVERSITI MALAYSIA SARAWAK
UNIMAS

www.unimas.my

NOTE OF CERTIFICATION

DATE: 11 February 2020

This note serves to certify the following:

1. We have tested the solution ***Quantum-Ion*** under laboratory conditions and found that ***Quantum-Ion*** was 99.99% efficient in degrading the human enterovirus A71 (EV-A71) and viral RNA when exposed to direct contact with the virus.

Professor Dr David Perera
Director

MSC-Status

94300 Kota Samarahan, Sarawak, MALAYSIA | Tel + 60 82 581 000 | Faks + 60 82 671 785

テストレポート２

シオンは人間のエンテロウイルス（HFMD）の99.99％の殺しました

DATE: 11 February 2020

This note serves to certify the following:

1. We have tested the solution ***Quantum-Ion*** under laboratory conditions and found that ***Quantum-Ion*** was 99.99% efficient in degrading the human enterovirus A71 (EV-A71) and viral RNA when exposed to direct contact with the virus.

Test Report 3

CHEMLAB
Teknologi Kimia Chemical Technology 化學工艺

CHEMICAL LABORATORY (MALAYSIA) SDN BHD (27822-K)
81-85 (2nd & 3rd Floor), Jalan SS25/2, Taman Bukit Emas, 47301 Petaling Jaya, Selangor Darul Ehsan, Malaysia.
Tel: 03-7803 2229, 7803 9582, 7803 0386 Fax: 03-7803 2303
E-mail: clhq@chemlab.com.my Homepage: http://www.chemlabgroup.com
ASSAYERS, ANALYTICAL CHEMISTS, MICROBIOLOGISTS AND INDUSTRIAL CONSULTANTS (GST : 001839865856)

Executive Chairman:
Dato' Dr. F.W. Kam
Ph.D., C.Chem., C.Sci., FRSC, FRACI, FIFST, FIMMM, FRSH, FCMI, FEI, FMIC, FPRIM, FPRIS, FMOSTA

President & CEO:
Dato' Marcus K.F. Kam B.E. (Hons.), M.Sc., C.Chem., FRACI, MRSC, MBA, AMIChemE.
Executive Director:
Datin P.K. Wong Dip. NIOA, FRSH, FCMI, FEI

CERTIFICATE OF ANALYSIS

Company : M/s. EVA Energy Sdn. Bhd.
5, Jalan Kempas Lama 1,
Off Jalan Kempas Lama,
81300 Johor Bahru, Johor Darul Takzim.

Lab No. : PJ-D/MS/1223/17 (A)

Page : 1 of 2

Sample Description : One (1) sample of Liquid Solution
Sample Marking : Nano G VirusGard
Date Sample Received : 17th February 2017
Date Analyzed : 22nd February 2017 – 27th February 2017
Date Reported : 27th February 2017

BACTERIOLOGICAL ANALYSIS :

Micro Kill Test

Procedure :

1) Prepare inoculum of organism below at 10^6 cfu/ml.

   a) *Staphylococcus aureus* ATCC 6538
   b) *Pseudomonas aeruginosa* ATCC 9027
   c) *Escherichia coli* ATCC 8739
   d) *Candida albicans* ATCC 10231
   e) *Aspergillus niger* ATCC 16404

2) Prepare the sample into five (5) portions by transferring 9 ml of sample and inoculate 1 ml of each inoculum above into product respectively and shake vigorously.

3) Proceed with serial dilution by transferring 1 ml from 1:10 dilution into 9 ml sterile saline up to necessary dilution.

4) Pipette 1 ml of each dilution into duplicate plates.

5) Pour approximately 15-20 ml of Tryptic Soy Agar (Bacteria) and Saboraud Dextrose agar (fungal) into all plates and allow it to solidify.

6) Incubate all plates at 35°C for 48 hours (Bacteria) and 25°C for 120 hours (fungal), count the colonies observed after completion of incubation.

7) Initial count for each inoculum was also recovered.

8) Calculate the percentage of kill for all organisms as follows :

$$\frac{\text{Initial Count} - \text{Count of organism survive}}{\text{Initial Count}} \times 100\%$$

Sam Loo Y. M.
B.Sc., AMIC
QA Manager

JOHOR BAHRU BRANCH
Wisma Kam, 52, Jalan Dedap 4, Taman Johor Jaya, 81100 Johor Bahru, Johor Darul Takzim, Malaysia.
Tel: 07-3543526 (4 Lines) Fax: 07-3543527

PENANG BRANCH
298-1-2-3, Jalan Datuk Ismail Hashim, 11900 Sungai Ara, Penang, Malaysia.
Tel: 04-6465277, 04-6467912 Fax: 04-6466260

KUCHING BRANCH
Lot 8805-8806, 3rd Floor, Pending Court, Jalan Kwong Lee Bank, 93450 Kuching, Sarawak. East Malaysia.
Tel: 082-343841 Fax: 082-343840

SINGAPORE BRANCH
520, Balestier Road # 06-01, Leong On Building, Singapore 329853.
Tel: (65) 62536122 Fax: (65) 62504837

THAILAND BRANCH
282 Raintree Office Garden, B3 Building, 3rd Floor, Soi Soonvijai 4, Rama IX Road, Bangkapi, Huaykwang, Bangkok 10310 Thailand.
Tel: (662) 719-6488-92 Fax: (662) 719-6483

CHEMLAB
Teknologi Kimia Chemical Technology 化學工艺

CHEMICAL LABORATORY (MALAYSIA) SDN BHD (27822-K)
81-85 (2nd & 3rd Floor), Jalan SS25/2, Taman Bukit Emas, 47301 Petaling Jaya, Selangor Darul Ehsan, Malaysia.
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E-mail: clhq@chemlab.com.my Homepage: http://www.chemlabgroup.com
ASSAYERS, ANALYTICAL CHEMISTS, MICROBIOLOGISTS AND INDUSTRIAL CONSULTANTS (GST : 001839865856)

Executive Chairman:
Dato' Dr. F.W. Kam
Ph.D., C.Chem., C.Sci., FRSC, FRACI, FIFST, FIMMM, FRSH, FCMI, FEI, FMIC, FPRIM, FPRIS, FMOSTA

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Executive Director:
Datin P.K. Wong Dip. NIOA, FRSH, FCMI, FEI

CERTIFICATE OF ANALYSIS

Company : M/s. EVA Energy Sdn. Bhd.
5, Jalan Kempas Lama 1,
Off Jalan Kempas Lama,
81300 Johor Bahru, Johor Darul Takzim.

Lab No. : PJ-D/MS/1223/17 (B)

Page : 2 of 2

Sample Description : One (1) sample of Liquid Solution
Sample Marking : Nano G VirusGard
Date Sample Received : 17th February 2017
Date Analyzed : 22nd February 2017 – 27th February 2017
Date Reported : 27th February 2017

MICROBIOLOGICAL ANALYSIS :

RESULTS :

Micro Kill Test

Organism Tested	Contact Time	Initial Count, cfu/ml (A)	Count of survive organism, cfu/ml (B)	Percentage of kill, $\frac{(A)-(B)}{(A)} \times 100\%$
Escherichia coli ATCC 8739	After 1 minutes	4.8×10^6	1.2×10^5	97.50%
	After 5 minutes		2.5×10^1	99.99%
	After 10 minutes		0	>99.99%
Staphylococcus aureus ATCC 6538	After 1 minutes	9.0×10^5	7.6×10^3	99.15%
	After 5 minutes		0	>99.99%
	After 10 minutes		0	>99.99%
Pseudomonas aeruginosa ATCC 9027	After 1 minutes	1.3×10^5	1.6×10^4	87.69%
	After 5 minutes		1.6×10^4	87.69%
	After 10 minutes		1.4×10^4	89.23%
Candida albicans ATCC 10231	After 1 minutes	9.6×10^5	8.2×10^3	99.14%
	After 5 minutes		6.8×10^3	99.29%
	After 10 minutes		4.1×10^3	99.57%
Aspergillus niger ATCC 16404	After 1 minutes	8.4×10^5	6.8×10^3	99.19%
	After 5 minutes		4.2×10^3	99.50%
	After 10 minutes		2.6×10^3	99.69%

Test Method : In-House Method based on United States Pharmacopoeia 28

Sam Loo Y. M.
B.Sc., AMIC
QA Manager

THE ABOVE ANALYSIS IS BASED SOLELY ON THE SAMPLES SUBMITTED BY THE CUSTOMER
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- The certificate shall not be reproduced except in full without the written approval of the laboratory.

JOHOR BAHRU BRANCH
Wisma Kam, 52, Jalan Dedap 4, Taman Johor Jaya, 81100 Johor Bahru, Johor Darul Takzim, Malaysia.
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Tel: (662) 719-6488-92 Fax: (662) 719-6483

シオンは
５分以内にバクテ
リアの９９.９％
殺菌することを
証明いたしました

Test Report 4

ASTAR LABORATORY PTE LTD
ENVIRONMENTAL CONSULTANTS & TESTING
27 Gul Avenue, Singapore 629667
Tel: 63396136 Fax: 62557608 Email: admin@astarlab.com.sg
Company Registration No. & GST: 201323826G

TEST REPORT NO: ASL-M176-19-S

Company Name : Life3 Pte Ltd
Address : 17 Kaki Bukit Place, Singapore 416195
Date Received : 03 May 2019
Date Tested : 03 May – 13 May 2019
Date Reported : 14 May 2019
Sample Description : One (1) sample said to be Quantum Ion Series

Sample was submitted by client on 03 May 2019 in a plastic container marked as:

Quantum Ion Series N2001

On analysis, the following results were obtained:

Test Microorganism	Initial Bacterial Load, cfu/mL	Log_{10}
Salmonella Typhimurium ATCC 14028	6.1×10^8	8.79
Staphylococcus aureus ATCC 25923	1.3×10^9	9.11
Candida Albicans ATCC 10231	4.1×10^6	6.61

Contact Time: 5 minutes, no dilution

Test Microorganism	Count of Surviving Test Microorganism, CFU/ml (Log_{10})	Log Reduction	Percentage Kill of Test Microorganism, %
Staphylococcus aureus ATCC 25923	<10 (1.0)	> 8.11	> 99.9999
Salmonella Typhimurium ATCC 14028	<10 (1.0)	> 7.79	> 99.9999
Candida Albicans ATCC 10231	<10 (1.0)	> 5.61	> 99.9999

ASTAR LABORATORY PTE LTD
ENVIRONMENTAL CONSULTANTS & TESTING
27 Gul Avenue, Singapore 629667
Tel: 63396136 Fax: 62557608 Email: admin@astarlab.com.sg
Company Registration No. & GST: 201323826G

TEST REPORT NO: ASL-M177-19-S

Company Name : Life3 Pte Ltd
Address : 17 Kaki Bukit Place, Singapore 416195
Date Received : 03 May 2019
Date Tested : 03 May – 13 May 2019
Date Reported : 14 May 2019
Sample Description : One (1) sample said to be Quantum Ion Series

Sample was submitted by client on 03 May 2019 in a plastic container marked as:

Quantum Ion Series E304

On analysis, the following results were obtained:

Test Microorganism	Initial Bacterial Load, cfu/mL	Log_{10}
Salmonella Typhimurium ATCC 14028	6.1×10^8	8.79
Staphylococcus aureus ATCC 25923	1.3×10^9	9.11
Candida Albicans ATCC 10231	4.1×10^6	6.61

Contact Time: 5 minutes, no dilution

Test Microorganism	Count of Surviving Test Microorganism, CFU/ml (Log_{10})	Log Reduction	Percentage Kill of Test Microorganism, %
Staphylococcus aureus ATCC 25923	<10 (1.0)	> 8.11	> 99.9999
Salmonella Typhimurium ATCC 14028	<10 (1.0)	> 7.79	> 99.9999
Candida Albicans ATCC 10231	<10 (1.0)	> 5.61	> 99.9999

シオンは
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５分以内に
９９.９９９９％
殺菌することを証
明いたしました。

Test Report 5

TEST REPORT

PSB Corporation

Your Ref:

Date: 22 Jul 2005

Our Ref: 57S053238-B-SLE

Page: 1 of 3

DID: 6885 1345 / 6885 1346

Fax: 6773 2912

NOTE: This report is issued subject to PSB Corporation's "Terms and Conditions Governing Technical Services". The terms and conditions governing the issue of this report are set out as attached within this report.

SUBJECT

Antibacterial Activity of Treated Fabric

CLIENT

Eco-Nano Marketing
93 Yishun Street 81
#01-07
Singapore 768451

Attn : Steve Siaw
Director

SAMPLING SUBMISSION DATE

05 Jul 2005

DESCRIPTION OF SAMPLE

1. One piece of NanoMax (Photocatalyst) Treated Fabric. (Size : 30 cm x 30 cm)
2. One piece of Untreated Fabric (Size : 30 cm x 30 cm)

METHOD OF TEST

AATCC Test Method 100-1999
'Assessment of Antibacterial Finishes on Textile Materials'

The test microorganism used was :

Klebsiella pneumoniae (ATCC 4352)

As requested, the inoculated samples were exposed under white fluorescent light at a distance of 50 cm for 6 hours and 24 hours at 25°C.

PSB TEST

ISO 9001

Head Office: PSB Corporation • Testing Group • 1 Science Park Drive Singapore 118221 • Hotline:+65 6885 1333 • Fax:+65 6775 9725 • Email: testing@psbcorp.com • Website: www.psbcorp.com
Reg. No.: 199002867R • Regional Offices: Bangkok • Guangzhou • Jakarta • Kuala Lumpur • Qingdao • Shanghai • Tianjin

RESULTS

Product : NanoMax (Photocatalyst) Treated Fabric

Test microorganism / Bacteria cells concentration	Count of test microorganism recovered from the inoculated sample		Percentage Reduction
	Untreated Fabric	NanoMax (Photocatalyst) Treated Fabric	
Klebsiella pneumoniae (ATCC 4352) (3.8×10^5 cfu/ml)			
0 hour	320 000	-	-
6 hours	-	420	99.87
24 hours	-	70	99.98

CHENG-SHAW LAY ENG (MRS)
TECHNICAL EXECUTIVE

KAM-LEONG YIN PHENG (MRS)
MICROBIOLOGIST
MICROBIOLOGY
TESTING GROUP

PSBテスト結果：
6時間のk_肺炎の減少率＞99.87%＆24時間_＞99.98%

Symptoms of Pneumonia		
Fever, cough	chills	chest pain
hemoptysis	dyspnea	tachypnea
tachycardia	rales	lung consolidation
cyanosis	mucoid sputum	current jelly sputum

Test Report 6

TEST REPORT

PSB Corporation

Your Ref:

Date: 22 Jul 2005

Our Ref: 57S053238-D-SLE

Page: 1 of 3

DID: 6885 1345 / 6885 1346

Fax: 6773 2912

NOTE: This report is issued subject to PSB Corporation's "Terms and Conditions Governing Technical Services". The terms and conditions governing the issue of this report are set out as attached within this report.

SUBJECT

Antibacterial Activity of Treated Fabric

CLIENT

Eco-Nano Marketing
93 Yishun Street 81
#01-07
Singapore 768451

Attn : Steve Siaw
Director

SAMPLING SUBMISSION DATE

05 Jul 2005

DESCRIPTION OF SAMPLE

1. One piece of NanoMax (Photocatalyst) Treated Fabric. (Size : 30 cm x 30 cm)
2. One piece of Untreated Fabric (Size : 30 cm x 30 cm)

METHOD OF TEST

AATCC Test Method 100-1999
'Assessment of Antibacterial Finishes on Textile Materials'

The test microorganism used was :

Escherichia coli (ATCC 8739)

As requested, the inoculated samples were exposed under white fluorescent light at a distance of 50 cm for 6 hours and 24 hours at 25°C.

PSB TEST

ISO 9001

Head Office: PSB Corporation • Testing Group • 1 Science Park Drive Singapore 118221 • Hotline +65 6885 1333 • Fax +65 6775 8725 • Email: testing@psbcorp.com • Website: www.psbcorp.com
Reg. No. : 199002867R • Regional Offices: Bangkok • Guangzhou • Jakarta • Kuala Lumpur • Qingdao • Shanghai • Tianjin

RESULTS

Product : NanoMax (Photocatalyst) Treated Fabric

Test microorganism / Bacteria cells concentration	Count of test microorganism recovered from the inoculated sample		Percentage Reduction
	Untreated Fabric	NanoMax (Photocatalyst) Treated Fabric	
Escherichia coli (ATCC 8739) (2.5×10^5 cfu/ml)			
0 hour	320 000	-	-
6 hours	-	1 000	99.68
24 hours	-	100	99.97

CHENG-SHAW LAY ENG (MRS)
TECHNICAL EXECUTIVE

KAM-LEONG YIN PHENG (MRS)
MICROBIOLOGIST
MICROBIOLOGY
TESTING GROUP

PSBテスト結果：
6時間のE_Coli削減率＞99.68%＆24時間＿＞
99.97%

Test Report 7

試 験 証 明 書

２００２年１月２４日

ご提出の試料に対する試験結果は下記の通りです。
受付月日　２００１年１１月３０日
品名・品番　ｳｪﾙｺｰﾄ100 塗布ﾌﾟﾚｰﾄ 、ﾌﾞﾗﾝｸﾌﾟﾚｰﾄ
数　　量　２

〒540-0005 大阪市中央区上町1丁目16番15号
財団法人 日本紡績検査協会
近畿事業所
TEL 大阪 (06)6762－5[illegible]（代表）
FAX 大阪 (06)6762－8[illegible]

〔試験項目〕
かび抵抗性試験

〔試験方法〕
JIS Z 2911　プラスチック製品の試験　方法 A
無機塩寒天培地上に試料を貼付し、湿潤剤添加無機塩溶液の入った下記５菌株の混合胞子懸濁液を噴霧した。２９±１℃、９０％RH以上で４週間培養し、試料上のかびの生育を観察した。

〔試験菌株〕
Aspergillus niger ATCC 6275
Penicillium funiculosum ATCC 9644
Paecilomyces variotii ATCC 10121
Gliocladium virens ATCC 9645
Chaetomium globosum ATCC 6205

Anti-mold and anti-fungal

〔試験結果〕

試　　料	かびの生育			かび抵抗性
	7日	21日	28日	表　示
ウェルコート１００ 塗布プレート	－	－	－	0
ブランクプレート	－	－	±	1

（注）　ラベルの反対面にＵＶ照射２時間後、試験を行った。

＊表中　（－）　かびの生育を認めない
（±）　わずかに生育を認めた
（＋）～（卅）　順次かびの生育が著しい
＊表示　（0）　肉眼及び顕微鏡下でかびの生育は認められない
（1）　かびの生育は肉眼では認められないが、顕微鏡下では認められる
（2）　かびの生育は試料面積の２５％以内
（3）　かびの生育は試料面積の２５％以上

試験番号　０１１４５４

本試験結果はご提出の試料に対するものであって、荷口を代表するものではありません。

試 験 証 明 書

２００１年１２月２７日

ご提出の試料に対する試験結果は下記の通りです。
受付月日　２００１年１１月３０日
品名・品番　プレートブランク、ウェルコート１００
数　　量　３

〒540-0005 大阪市中央区上町1丁目16番15号
財団法人 日本紡績検査協会
近畿事業所
TEL 大阪 (06)6762－5[illegible]（代表）
FAX 大阪 (06)6762－8[illegible]

〔試験項目〕
抗菌性試験

〔試験菌株〕
ＭＲＳＡ　*Staphylococcus aureus* IID 1677

〔試験方法〕
ＪＩＳ Ｚ ２８０１（フィルム密着法）に準ずる。

〔試験結果〕

植　菌　数　[A]	1.2×10^5
ﾌﾟﾚｰﾄﾌﾞﾗﾝｸ　[B]	1.6×10^4

試　　料	菌　数	減 菌 率(%)
ウェルコート１００　Ｂ－６	2.6×10^3	83.8
ウェルコート１００　Ｄ－６	10 以下	99.9 以上

（注.）　ラベルの反対面にＵＶ照射を行いながら２時間培養した。
（注.）　減菌率の算出は、ブランクをもとに行った。

The killing rate for Methicillin-Resistant Staphylococcus Aureus（MRSA) is above 99.9%

試験番号　０１１４５４－(1)

本試験結果はご提出の試料に対するものであって、荷口を代表するものではありません。

Test Report 8

報告No.O-49-070
Aug. /29/'05
大和化学工業株式会社
研究開発統括部（大阪）

抗菌性能試験結果

【試　料】 貴社提供加工品　　計３点
青色フィルター：使い捨てタイプ（ポリエチレン製）
白色フィルター：ウォッシャブルタイプ（ポリエステル製）
加工条件
・A 液（耐洗濯性・消臭・抗菌重視）
・B 液（価格重視・抗菌のみ）
白色 A：A 液を裏面、表面より計 400 g /m^2 (wet)スプレー
青色 A：A 液を裏面、表面より計 200 g /m^2 (wet)スプレー
青色 B：B 液を裏面、表面より計 200 g /m^2 (wet)スプレー
洗濯方法：JIS L-0217 103 法に準じて 3 回行いました。（JAFET 標準洗剤使用）

【方　法】 抗菌性試験法
内　容：JIS L-1902:2002 繊維製品の定量試験方法に基づきます。
全ての試料において、菌液接種時に活性剤 Tween80 を使用しています。
供試細菌：*Staphylococcus aureus* NBRC 12732（黄色ブドウ球菌）
判　定：静菌活性値が 2.2 以上で抗菌効果が有ります（JAFET 基準）。
この試験は、増殖値が 1.5 以上で成立します。

【結　果】

		菌数 N_1	菌数 N_2	菌数平均値	増殖値	
標準布 0 時間		8.6×10^4	1.2×10^5	1.0×10^5	2.2	
標準布 18 時間		1.3×10^7	1.9×10^7	1.6×10^7	（試験成立）	
試料	洗濯	N_1	N_2	菌数平均値	静菌活性値	判定
白色 A	0 回	<20	<20	<20	5.8	有
	3 回	<20	<20	<20	5.8	有
青色 A	0 回	<20	<20	<20	5.8	有
青色 B	0 回	<20	<20	<20	5.8	有

【考　察】 上記試験結果より、貴社提供品に抗菌効果が認められました。

以　上

Test Report 9

TEST REPORT

Your Ref:

Date: 11 Oct 2006

Our Ref: 57S065343-01-SLE

Page: 1 of 3

DID: 6885 1345 / 6885 1346

Fax: 6773 2912

NOTE: This report is issued subject to PSB Corporation's "Terms and Conditions Governing Technical Services". The terms and conditions governing the issue of this report are set out as attached within this report.

SUBJECT

Antimicrobial Activity of Coating

CLIENT

Eco-Nano Marketing
Blk 3007 Ubi Road 1
#02-436
Singapore 408701

Attn : Mr Steve Siaw

SAMPLE SUBMISSION DATE

28 Sep 2006

DESCRIPTION OF SAMPLE

1. 12 pieces of untreated stainless steel plates (Size : 50 mm x 50 mm).
2. 12 pieces of stainless steel plates treated with NanoMax™ – Nano Silver Coating (Size : 50 mm x 50 mm).

METHOD OF TEST

JIS Z 2801 : 2000
"Antimicrobial products – Test for antimicrobial activity and efficacy".

The test microorganism

Staphylococcus aureus (ATCC 6538)

PSB TEST

ISO 9001

PSB Corporation • Testing Group • 1 Science Park Drive Singapore 118221 • Support Line: +65 6885 1333 • Fax: +65 6776 8670 • Email: testing@psbcorp.com • Website: www.psbcorp.com
Company Registration No.: 199002067R • PSB Corporation is wholly owned by TÜV SÜD AG

57S065343-01-SLE

PSB Corporation

RESULTS

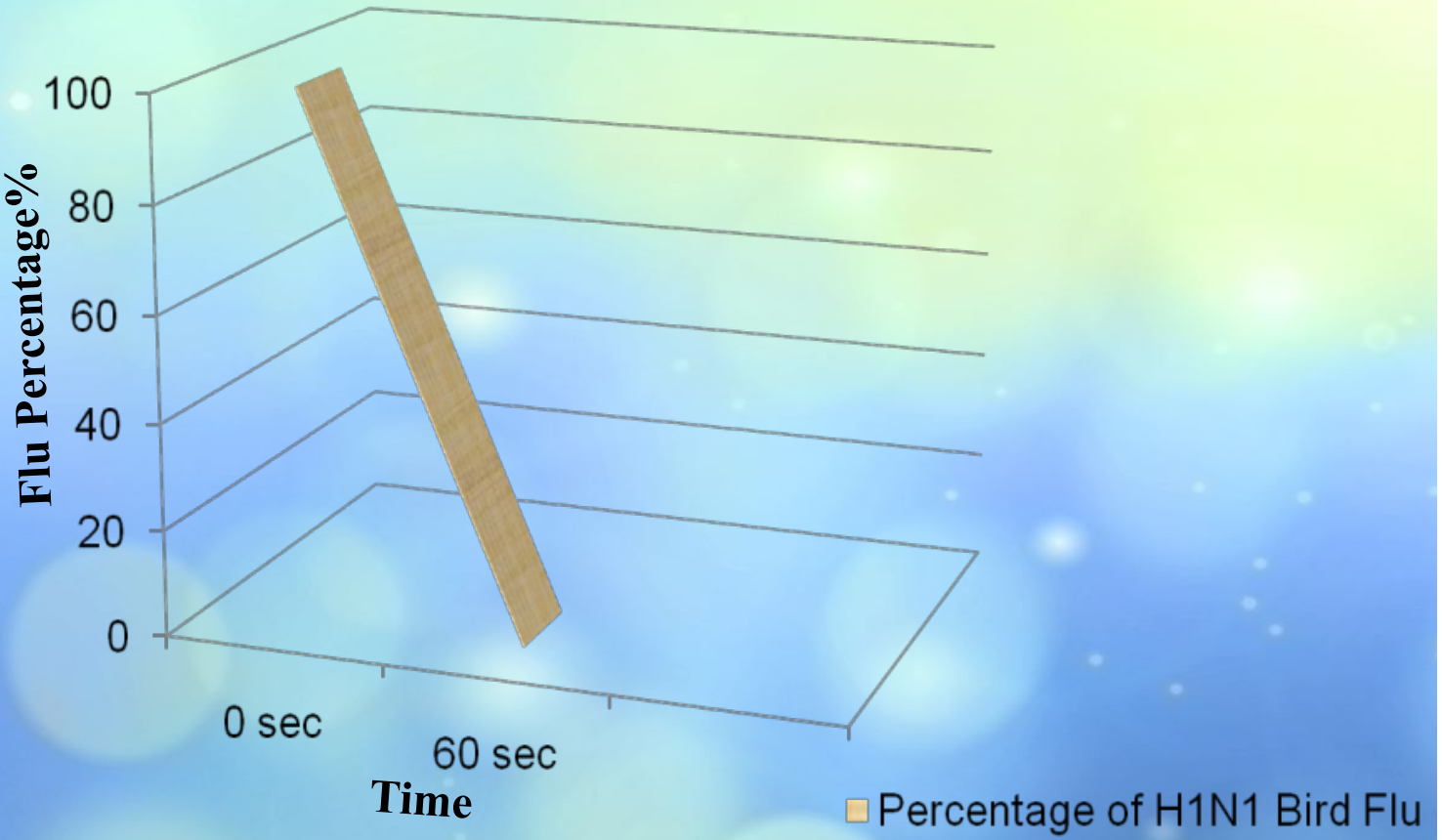
Product : NanoMax™ – Nano Silver Coating

Test microorganism (Bacterial cells per test piece)	Average of the number of viable cells of test microorganism per test piece		Value of Antimicrobial Activity (Criteria : Not less than 2.0)	Percentage Reduction
	0 hour	24 hours		
Staphylococcus aureus **(ATCC 6538)** **(1.1×10^5 cells)**				
Untreated stainless plate	76 000	4 200 000	-	-
Stainless steel plate coated with NanoMax™ – Nano Silver Coating	-	37	5.0	99.95

CHENG-SHAW LAY ENG (MRS)
TECHNICAL EXECUTIVE

KAM-LEONG YIN PHENG (MRS)
MICROBIOLOGIST
MICROBIOLOGY
TESTING GROUP

テストレポート１０：鳥インフルエンザ（H1N1）



- 京都府立医科大学が実施した試験。テスト結果：
- 鳥インフルエンザ（H1N1）の減少率> 1分で99%。

KPUM Kyoto Prefectural University of Medicine 京都府立医科大学

平成17年2月8日

京都府立医科大学・医学研究科
感染免疫病態制御学
職　名　教授
氏　名　今西二郎 印

「光触媒コート剤（ウェルコート）のインフルエンザウイルス増殖抑制効果」
－受託研究報告書－

・市販、汎用タイプ、高抗菌タイプのウェルコートをコーティングすることによりヒトインフルエンザウイルスの増殖は特異的に抑制された。
・抑制効果はUV照射により増強された。
・市販、汎用タイプで最も高いウイルス増殖抑制効果が認められた。この増殖抑制効果は液状のウェルコートをウイルスと反応させても見られないことから、コーティングしたウェルコートより産生されるヒドロキシルラジカル等がウイルスの増殖性を阻害していることが示唆された。
・マルチパワー混合品では溶液中に強い抗ウイルス物質が含まれることが明らかとなった。即ち、ウェルコートの酸化チタン（光触媒）より発生するヒドロキシルラジカル以外の抗ウイルス効果が含まれることが示唆された。
・UV未処理の試験においても汎用タイプではUV処理区とほぼ同程度の増殖抑制効果を認めたことから、ウェルコートによる抗ウイルス効果は通常の室内照明下でも有効であることが示唆された。

表　ウェルコートによるウイルス増殖抑制効果

	UV未照射	UV照射（1分）	UV照射（1分）
ウェルコート		ウイルス添加前にUV照射	ウイルス添加後にUV照射
市販タイプ	5.6%	3.5%	1%
汎用タイプ	2.5%	1%	1%
高抗菌タイプ	11.1%		
マルチパワー	1%未満※		

数字はウェルコート未処理区におけるウイルス増殖を100としたときの相対値（%）を表す。
※ただしマルチパワー溶液をウイルスと混合しても同様の増殖抑制効果が見られる。

証言：シンガポール病院

KK Women's and Children's Hospital
SingHealth

Tel: (65) 6293 4044
Fax: (65) 6293 7933
100 Bukit Timah Road
Singapore 229899
www.kkh.com.sg

22 June 2009

Silverplus Technology (S) Pte Ltd
32 Ang Mo Kio Industrial Park 2
#06-08 SING Industrial Complex
Singapore 569510

Attn: To whom it may concern

NANOSILVER AND TITANIUM DIOXIDE CATALYST SYSTEM (Nano Max)

This is to express our satisfaction on the abovementioned that had been implemented in our new Air Handling Units and Fan Coil Units during our ACMV Phase 2 project.

An Indoor Air Quality audit conducted shown that there is a fall in bacteria and fungi count which is in line with our goal to provide a healthy environment to our patient, visitor and staff.

This system had indeed further enhanced our ACMV system.

Yours Sincerely
KK Women's and Children's Hospital

Anthony Lim
Facilities Manager

Hospital of Choice for Women and Children

Members of the SingHealth Group
Changi General Hospital • KK Women's and Children's Hospital • Singapore General Hospital
National Cancer Centre • National Dental Centre • National Heart Centre • Singapore National Eye Centre
SingHealth Polyclinics

National University Hospital

Date: 20th Aug 2009

Silverplus Technology (S) Pte Ltd
53 Ubi Ave 1, #05-17
Paya Ubi Industrial Park
Singapore 408934

Attn: To whom it may concern

UV-NANOMAX AIR STERILIZATION SYSTEM AND SURFACE TREATMENT

We would like to express our satisfaction on the above mentioned that was installed into our Fan Coil Unit and treated onto the surrounding walls serving the mould-filled Ward 47 Procedure room.

It has decontaminated and significantly improved the indoor air quality to achieve within NEA guidelines. The unpleasant musty odour has reduced tremendously whereby our staffs were able to feel the immediate difference. Air audit performed by an accredited laboratory shows a 90% reduction in both airborne bacteria and fungi counts. This is in line with our objective to provide a healthy and pleasant environment for our patients and staffs.

Therefore, we recommend the abovementioned with confidence especially for medical environment.

Yours Sincerely
National University Hospital of Singapore

Eddy Nai
Facilities Engineer

証言：マレーシア保健省

BAHAGIAN PERKHIDMATAN KEJURUTERAAN
KEMENTERIAN KESIHATAN MALAYSIA
Aras 2-5, Blok E6,
Parcel E, Precint 1,
Pusat Pentadbiran Kerajaan Persekutuan,
62590 PUTRAJAYA, MALAYSIA.

SIRIM
CERTIFIED TO MS ISO 9001:2000
Reg. No: AR 1034

Tel : (603) 8883 3888
Fax : (603) 8888 6184/ 8181
http : //www.moh.gov.my/engineering

Ruj Kami : ( ) dlm.KKM 153 PCG 18

Tarikh : 19 Oktober 2009

To Whom it May Concern,

Nanomax® Photo-Catalyst and Nano-Silver Coating System

Reference is made in relation to the above mentioned product.

Further to detailed assessment conducted by our engineers, we found that the test report related to the product is in line with many technical findings on photo-catalyst reaction and technology. The photo-catalyst reaction is potentially benefit in eliminating high degree of micro-organizm. The product has been recommended to be used in Hospital Sultan Ismail, Johor Bahru for the control of indoor air pollutants.

Yours sincerely,

(DATUK CHIN GOO CHAI)
Director
Engineering Services Division
Ministry of Health Malaysia

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'Sila catatkan rujukan surat ini apabila menjawab'

BAHAGIAN PERKHIDMATAN KEJURUTERAAN
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Ruj Kami : (16) dlm.KKM 153 PCG/PHE (3)

Tarikh : 28 Oktober 2009

CEO
Platinum Maxim Sdn. Bhd.
No. 6-2 Jalan PJU 5/21,
Pusat Perdagangan Kota Damansara
47810 Petaling Jaya

Inspection and Case Study for Indoor Air Quality using Nanomax Coating System

Reference is made in relation to your invitation for the visit on 22 October 2009 and microbial test report dated 24 October 2009.

The result demonstrated that the above coating system is able to reduce the microbial on surface treated with Nanomax coating. It is in line with the objective of good indoor air quality practice to reduce the air-borne hazard. We strongly recommend of continuous monitoring and maintenance to enhance long term indoor air quality for the same built environment.

Thank you.

Yours sincerely,

(KHEW SWEE LIAN)
b/p:
Director
Engineering Services Division
Ministry of Health Malaysia

cc: Pyramid Tower Hotel

Disclaimer: This letter is solely based on the fact at the time it is issued. The department does not have any intention to demonstrate any bias recommendation to any products. Please refer to the expert's advice if you have any doubt to the application of the above product.

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'Sila catatkan rujukan surat ini apabila menjawab'

5年間のR＆D、イノベーション、アプリケーションがクライアントからの信頼を獲得

Hotels/Service Apartments

Shangri-La Hotel–Singapore, Hong Kong, Guangzhou
Westin Hotel -Malaysia
Hotel Lisboa – Macau
Oriental Mandarin Hotel – Singapore
Marina Bay Sands Hotel –Singapore
Conrad Hotel- Singapore
Four Seasons Hotel – Singapore
Pan Pacific Hotel – Singapore
Equatorial Hotel - Singapore
Park Royal Hotel – Singapore
Sheraton Hotel – Macau, Singapore
Berjaya Langkawi Beach & Spa Resort-Malaysia
Pyramid Tower Hotel Kuala Lumpur-Malaysia
Genting First World Hotel-Malaysia

Hospital

Hospital Sultan Ismail -Malaysia
Ampang Puteri Specialist Hospital -Malaysia
Bumrungrad International Hospital – Thailand
Singapore National University Hospital–Singapore
KK Women's & Children's Hospital – Singapore

Others

Chartered Semi-Conductor – Singapore
Singapore Discovery Centre Ltd– Singapore
Rentokil Initial Hygiene – Singapore
Raffles City Mall – Singapore
Suntec City – Singapore
Nanyang Academy of Fine Arts – Singapore
Resort World Maritime Museum– Singapore
Kowloon City Law Court Building - Hong Kong
Chang Jiang Building - Hong Kong
Universiti Kebangsaan Malaysia
Senai Airport - Malaysia
Kuala Lumpur International Airport -Malaysia
University Technology Malaysia