HealthGuard® AMIC

AN INTRODUCTION TO OUR

Intelligent & Safe Biotech Solutions

July 2020

ABOUT HEALTHGUARD®

Global leaders in tailored non-invasive healthcare.

HealthGuard® is a privately owned and operated company dedicated to research and development of safe innovative biotech solutions for a broad range of products.

An industry leader worldwide for over 25 years, HealthGuard® manufactures at its Australian Government licenced state of the arts facility in Melbourne, Australia.

All HealthGuard® products are independently tested at world leading facilities.

AUSTRALIAN MADE

PROUDLY INTRODUCING HealthGuard® AMIC

A specially formulated non-silver broad range Anti-Microbial and Anti-Viral (Destroys SARS-CoV-2 - COVID-19 strain virus) thoughtfully formulated using cosmetic based chemistry.

Formulated for use in the textile industry over 25 years ago

Can be applied to all types of textiles and is compatible with most finishing agents.

Effective with a broad range of textile finishes

Effective with Fluorocarbon and flame-retardant finishes, all resin systems and cationic, non-ionic softeners normally used in textile finishing.

Long-lasting protection

Achieved excellent wash performance. When applied as directed, HG® AMIC achieves over 99% reduction in virus and 96% reduction in bacteria after 20 washes.

FEATURES OF

HealthGuard® AMIC

- Ideal for apparel textile, advanced textile and technical textile
- Ideal for application to mattress tickings and all other bedding accessories
- Ideal for application to face masks
- Can be sprayed onto polyester fibre and feathers used in continental quilts and pillows
- Suitable to be incorporated into polyurethane foam
- Can be sprayed onto carpets as a topical treatment
- Treated articles will effectively kill a broad range of harmful microorganisms which are dangerous to human health, as well as odour causing
- Treated articles will effectively destroy SARS-CoV-2 (COVID-19)

HealthGuard® AMIC

WHY IS ANTI-VIRAL IMPORTANT ON TEXTILES?

In light of the global pandemic known as COVID-19, consumers are showing the trend to seek health protective products.

Everyday we walk through micro droplets of residual sneezes and coughs. The aerosol droplets suspended for hours in the air we breath and attach to our clothing, hands and faces, which expose us to routes of ingestion.

We may wear a mask to prevent inhalation, wash our hands and use hand sanitizer, however our clothes can carry live virus droplets for many hours.

When clothing fabrics, upholstery fabrics, bedding, masks are treated with HealthGuard® AMIC you have a 24/7 silent sentinel protecting these articles from deadly germs.

HealthGuard® AMIC

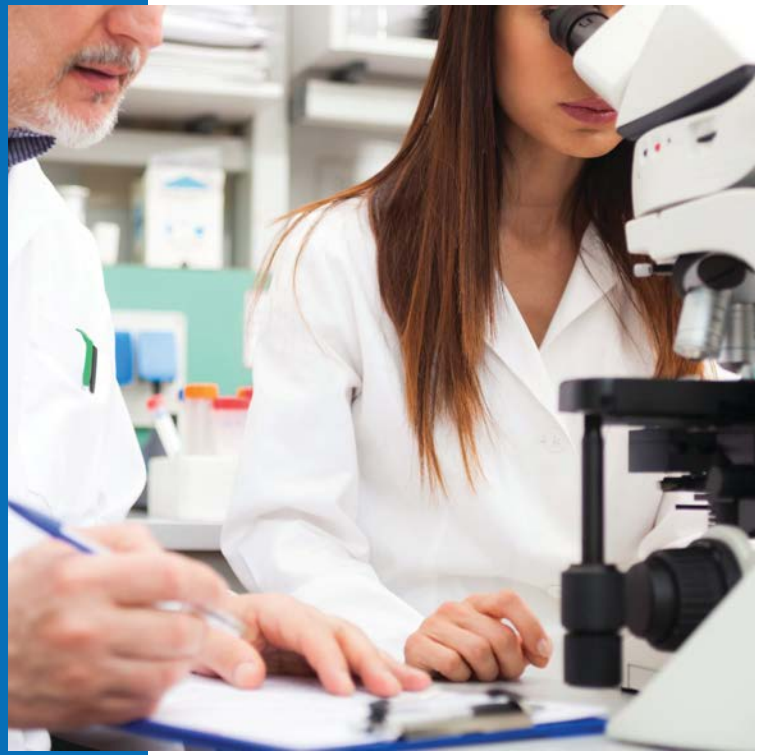
TEST RESULTS

HealthGuard® AMIC was developed by Dr Christopher Harvey, Founder of HealthGuard® over 25 years ago.

HealthGuard® AMIC is well tried, tested and safe.

Independently tested by

- The University of Melbourne, Doherty Institute
- Guangdong Detection Centre of Microbiology, China
- Biotech Testing Services



SARS-CoV-2 | **COVID-19** TESTING RESULTS

Doherty Institute

THE UNIVERSITY OF MELBOURNE

The Royal Melbourne Hospital

A joint venture between The University of Melbourne and The Royal Melbourne Hospital

Report for Health Guard

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Recipient: Health Guard

Experimenter: Dr. Julie McAuley

Results Verified by: Prof. Damian Purcell

Date experiment began: 9th June, 2020 Date qRT-PCR performed: 18th June, 2020
Temperature: 18°C-20°C
Relative Humidity: 40-44%

Introduction: Samples of material were provided by Health Guard to staff from the Peter Doherty Institute who conducted agreed upon assays to evaluate whether the textile samples can render SARS-CoV-2 inert via the following methods:

Quantitative PCR for total amount of genomic material in samples: Assaying for virus presence via quantitative PCR (qPCR) will give an indication that the virus has been present and genomic material remains, but does not give an indication as to whether this material is infectious.

Quantitation of infectious virus titre in samples via a 50% Tissue Culture Infectious Dose assay ($TCID_{50}$): This assay results in establishing how dilute the sample containing infectious virus must be, before any virus present stops causing cytopathic effect (CPE) in at least 50% of the cells. When compared to the untreated controls, the $TCID_{50}$ value will give quantitative differences in the amount of infectious virus left in the sample.

Aim: To evaluate the time at which 2% Health Guard inhibits virus viability.

Method:

1. 2cm round piece of textile substrate was aseptically placed in a 12 well plate. 1 plate contained treated materials, a second plate contained the untreated materials.
2. In the BSCII hood in PC_3 lab, 50µL SARS-CoV-2 was added to the textile substrate (n=3 per time point). The plate containing the samples will remain in the BSCII hood, with the lid on.
3. After 10min, 60min and 120min, 1mL MEM infection media (MEM+ antibiotics, no FBS) was added to each sample and surfaces were washed with vigorous pipetting.
4. Eluate was collected and aliquots immediately used in a $TCID_{50}$ quantitation assay and RNA extracted for quantitative RT-PCR analysis.
5. The inoculum control was generated by allowing the original vial of neat inoculum (sealed) to sit in the BSCII cabinet at room temperature for the duration of the sampling period.

A 2% HealthGuard treated substrate completely **destroyed COVID-19**, rendering the virus NOT DETECTED.

The 2% HealthGuard treated fabric exhibited **significant virucidal** activity against COVID-19 strain within **10 min** of exposure.

"Our researchers in the Doherty Institute High level Biocontainment facilities have conducted many studies on numerous antiseptic agents for surfaces contaminated with SARS-CoV-2.

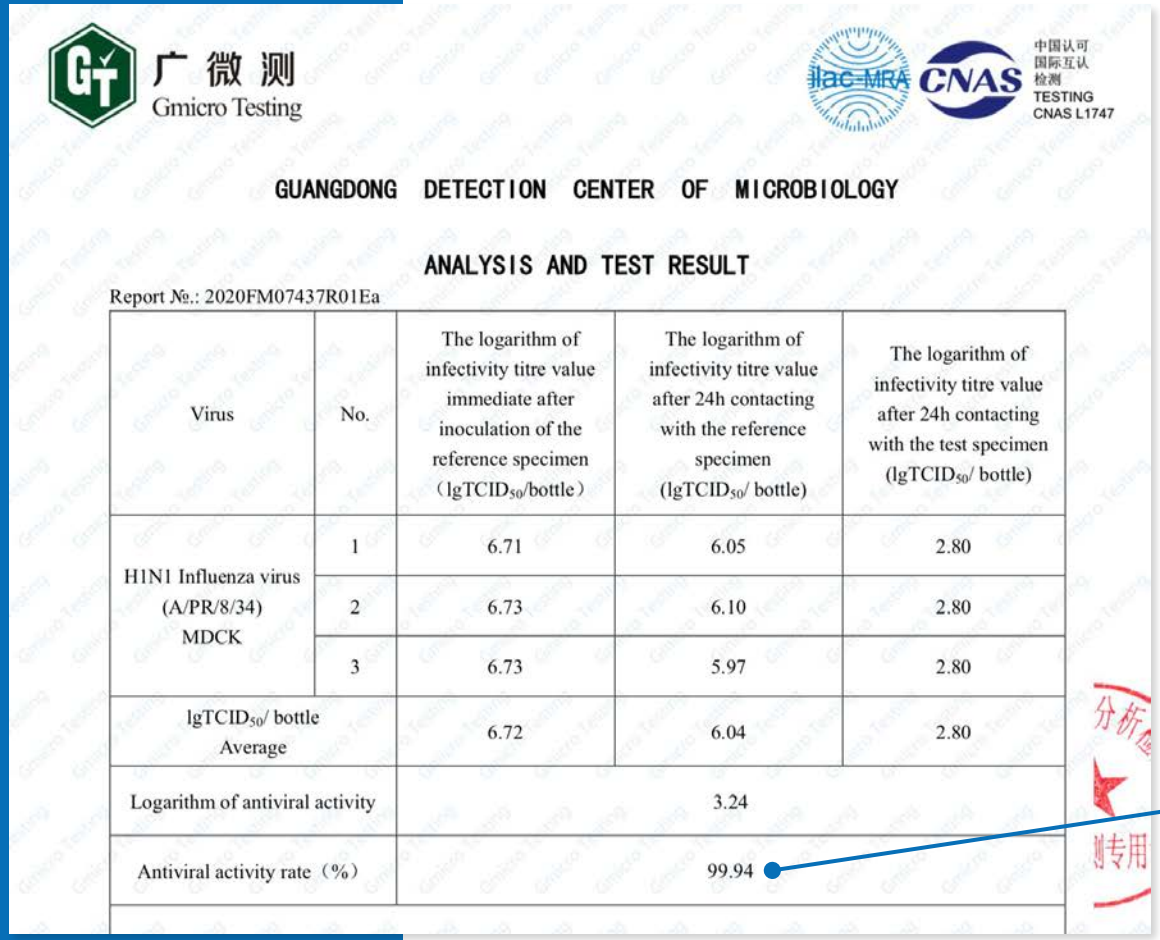
The Health Guard embedded treated fabric showed significant virucidal activity against SARS-CoV-2 within 10 minutes and completely abolished the ability for the virus to be infectious within an hour.

This particular product has shown superior activity compared to other products tested."

Prof. Damian Purcell
Head of the Molecular Virology Laboratory in the Department of Microbiology and Immunology at Doherty Institute for Infection and Immunity at The University of Melbourne.

This **proves** 2% HealthGuard present in the provided fabric renders COVID-19 strain **non-infectious.**

ISO 18184 | ANTI-VIRAL TESTING RESULTS



广微测 Gmicro Testing

中国认可 国际互认 检测 TESTING CNAS L1747

GUANGDONG DETECTION CENTER OF MICROBIOLOGY

ANALYSIS AND TEST RESULT

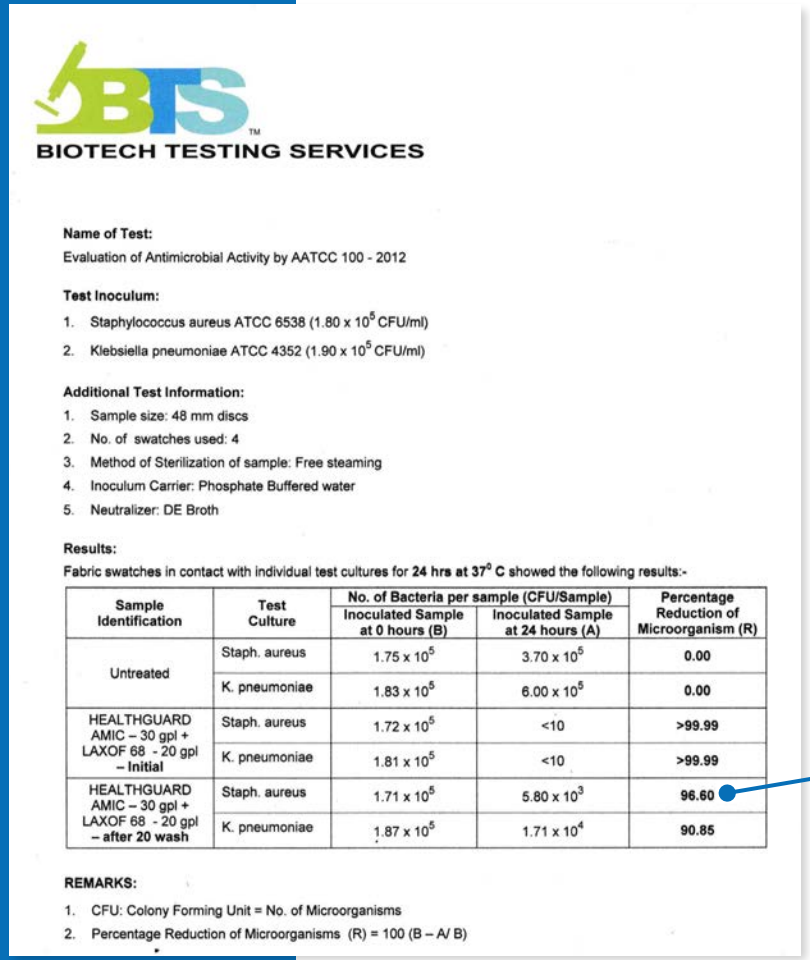
Report №.: 2020FM07437R01Ea

Virus	No.	The logarithm of infectivity titre value immediate after inoculation of the reference specimen ($lgTCID_{50}$/bottle)	The logarithm of infectivity titre value after 24h contacting with the reference specimen ($lgTCID_{50}$/ bottle)	The logarithm of infectivity titre value after 24h contacting with the test specimen ($lgTCID_{50}$/ bottle)
H1N1 Influenza virus (A/PR/8/34) MDCK	1	6.71	6.05	2.80
	2	6.73	6.10	2.80
	3	6.73	5.97	2.80
$lgTCID_{50}$/ bottle Average		6.72	6.04	2.80
Logarithm of antiviral activity		3.24		
Antiviral activity rate (%)		99.94		

99.94% Effective against **Corona Virus** (H1N1)

99.94

ANTI-BACTERIAL TESTING RESULTS



BIOTECH TESTING SERVICES

Name of Test:

Evaluation of Antimicrobial Activity by AATCC 100 - 2012

Test Inoculum:

1. Staphylococcus aureus ATCC 6538 (1.80×10^5 CFU/ml)
2. Klebsiella pneumoniae ATCC 4352 (1.90×10^5 CFU/ml)

Additional Test Information:

1. Sample size: 48 mm discs
2. No. of swatches used: 4
3. Method of Sterilization of sample: Free steaming
4. Inoculum Carrier: Phosphate Buffered water
5. Neutralizer: DE Broth

Results:

Fabric swatches in contact with individual test cultures for **24 hrs at 37° C** showed the following results:-

Sample Identification	Test Culture	No. of Bacteria per sample (CFU/Sample)		Percentage Reduction of Microorganism (R)
		Inoculated Sample at 0 hours (B)	Inoculated Sample at 24 hours (A)	
Untreated	Staph. aureus	1.75×10^5	3.70×10^5	0.00
	K. pneumoniae	1.83×10^5	6.00×10^5	0.00
HEALTHGUARD AMIC – 30 gpl + LAXOF 68 - 20 gpl – Initial	Staph. aureus	1.72×10^5	<10	>99.99
	K. pneumoniae	1.81×10^5	<10	>99.99
HEALTHGUARD AMIC – 30 gpl + LAXOF 68 - 20 gpl – after 20 wash	Staph. aureus	1.71×10^5	5.80×10^3	96.60
	K. pneumoniae	1.87×10^5	1.71×10^4	90.85

REMARKS:

1. CFU: Colony Forming Unit = No. of Microorganisms
2. Percentage Reduction of Microorganisms (R) = 100 (B – A/ B)

Achieving excellent wash durability with **over 96% Anti-Bacterial activity after 20 washes**

96.60

ANTI-VIRAL TESTING RESULTS

BIOTECH TESTING SERVICES

Results:
Fabric swatches in contact with Test organism for 10 minutes, 2 hours & 24 hours at 35° C showed the following results:-

Sample Identification	Test Organism: MS2 Bacteriophage				Log Redn. of Virus at 10 mins.	% Redn. of Virus at 10 min.	MS2 Bacteriophage		Log Redn. of Virus at 2 hrs	% Redn. of Virus at 2 hrs	MS2 Bacteriophage		Log Reduction of Virus at 24 hours	Percentage Reduction of Virus at 24 hours
	Average PFU/Carrier at 0 hours (B)		Average PFU/Carrier at 10 minutes (A)				Average PFU/Carrier at 2 hours (A)				Average PFU/Carrier at 24 hours (A)			
	PFU	log	PFU	log			PFU	log			PFU	log		
Untreated	2.90×10^4	4.46	2.50×10^4	4.39	0.07	13.79	2.24×10^4	4.35	0.11	22.75	2.20×10^4	4.34	0.12	24.13
HEALTHGUARD AMIC – 30 gpl + LAXOF 68 - 20 gpl – Initial			1.20×10^3	3.07	1.39	95.86	<10	<1	>3.46	>99.96	<10	<1	>3.46	>99.96
HEALTHGUARD AMIC – 30 gpl + LAXOF 68 - 20 gpl – after 20 wash			1.50×10^3	3.17	1.29	94.82	5.60×10^2	2.74	1.72	98.06	2.30×10^2	2.36	2.10	99.20
Untreated – Lab Control			3.20×10^4	4.50	0.00	0.00	4.50×10^4	4.65	0.00	0.00	9.50×10^4	4.97	0.00	0.00

REMARKS:
1. PFU: Plaque Forming Unit = No. of Microorganisms
2. Percentage Reduction = (B – A/ B) x 100
3. Log reduction Log (B/A); Where
   B = No. of viable test microorganisms on the control carriers immediately after inoculation; A = No. of viable test microorganisms on the test carriers after the contact time

INTERPRETATION:
Fabric labeled as **Untreated** has shown **13.79%, 22.75%** and **24.13%** reduction of Virus; **HEALTHGUARD AMIC – 30 gpl + LAXOF 68 - 20 gpl – Initial** has shown **95.86%, >99.96%** and **>99.96%** reduction of Virus; **HEALTHGUARD AMIC – 30 gpl + LAXOF 68 - 20 gpl – after 20 wash** has shown **94.82%, 98.06%** and **99.20%** reduction of Virus in 10 minutes, 2 hours & 24 hours respectively when analyzed as per AATCC 100 - 2012 test Method using MS2 Bacteriophage as surrogate virus.

BIOTECH TESTING SERVICES BTS MUMBAI

For BIOTECH TESTING SERVICES

Dr Shilpa U. Nair
Quality Manager
(Authorized Signatory)

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104/105, Malwa, Patanwala Ind. Estate, L.B.S. Marg, Ghatkopar (W), Mumbai - 400086, INDIA • Tel. +91-22-2500 2811, 2500 2812
Email : info@biotechts.in / report@biotechts.in / biotechtestingservices@gmail.com / shilpanair@biotechts.in

99.20

HealthGuard® AMIC shows excellent Anti-Viral properties after 20 washes, providing long lasting protection

VISUAL DEMONSTRATION

UNTREATED FABRIC

ENVELOPED VIRUS PARTICLES
DEPOSITED ON UNTREATED TEXTILE.

Untreated Textile Substrate

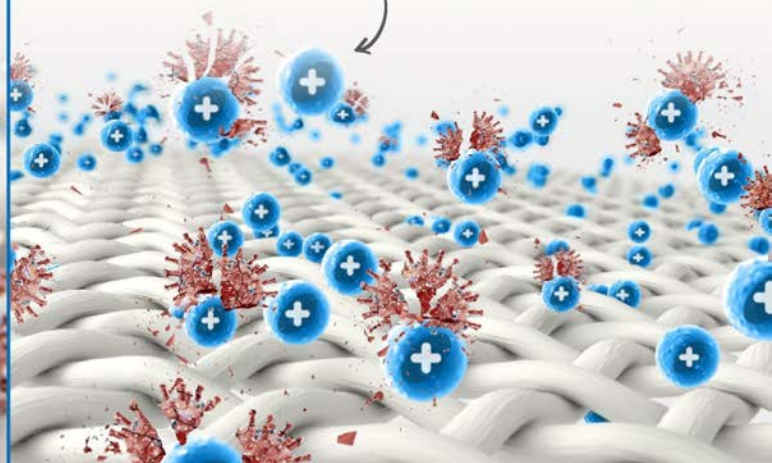
HealthGuard® AMIC

TREATED FABRIC

HEALTHGUARD RUPTURES THE
ENVELOPE, KILLING THE DNA.

HealthGuard AMIC Treated Textile
substrate destroys COVID 19.

Tested Bacteria Including MRSA & E.Coli.



HEALTHGUARD® ANTI-VIRAL TESTING CHART

TEST TYPE	RESULT	DETERMINATION	ADVANTAGES	DISADVANTAGES
EXTRACTION METHOD	PPM	Active content on your submitted fabric will be determined HGC will compare the active content on your submitted fabric to HGC Sample that achieved 99.94% Anti-Viral Activity Rate (%) as per ISO 18184 or other Anti-Viral testing undertaken	1. 7-10 day result turn around time from receipt of fabric at HGC 2. Cost is USD 300.00 per test 3. Cost effective 4. Good method for quality control of application 5. Independently tested at Australian Government Approved Analyst as per Agricultural and Veterinary Chemicals (Administration) Act 1992	1. Labelling must indicate the result is comparative 2. Customer may specifically require Anti-Viral Activity Rate (%) from you 3. Anti-Viral Activity Rate (%) is not specific to your treated article
ISO 18184	Anti-Viral Activity Rate (%)	Actual Anti-Viral Activity Rate (%)	1. Anti-Viral rate specific to your application 2. Can state anti-viral rate on hang tag 3. Piece of mind 4. Increase credibility to customer	1. Costs anywhere between USD 650 – USD 2000 (depending on laboratory) 2. Not cost effective for quality control 3. Long waiting periods for testing. Minimum 2 months, if accepted due to over exhausted testing facilities

LAST UPDATED: 12TH JUNE 2020

HANG TAGS

HealthGuard®

Branding Guidelines

Biocidal claims vary depending on country of marketing. We can guide you on claims, however we recommended that you seek independent legal advice in conjunction with this information to ensure compliance prior to purchase and promotion.

4 SIDE PREMIUM HANG TAG OPTION

COMPLIANCE & CERTIFICATIONS

1. HealthGuard® AMIC is COMPLIANT with current Biocidal Product Regulation (BPR) under PT 2.

2. We hereby declare that the mentioned HealthGuard® AMIC contain no ingredients listed on the California Proposition 65, updated on 3rd January 2020.

3. HealthGuard® AMIC is under evaluation with ZDHC Level 1 and 2.

4. HealthGuard® AMIC is currently being assessed for Oeko Tex active biocidal product certification.

COMPETITIVE EDGE

Australian Made

HealthGuard® are pioneers of non-invasive preventative textile treatments with strong technical background in textiles for over 50 years

HealthGuard® is a world recognised and trusted brand

No Heavy metal technology. HealthGuard® AMIC is based on safe cosmetic based chemistry that it also approved for food use.

Testing has been undertaken on SARS-CoV-2 human strain. The like for like strain causing COVID-19.

HealthGuard® AMIC is 25 years tried, tested and safe

Superior results for anti-microbial and broad range of anti-viral testing

TREATING GLOBALLY LEADING BRANDS

HealthGuard® Proudly AUSTRALIAN MADE.

HealthGuard®

Proudly

AUSTRALIAN MADE®