

2021

CORPORATE PROFILE

**Information
& Business
Catalog**

Innovation of **IDEAS & EFFICIENCY** in any of our endeavours



XFYRE (M) SDN BHD was conceived with the notion to break grounds and shift the nature of various industries. We believe in the innovation of ideas and efficiency in any of our endeavours.

Our team has experience in various projects ranging from telecommunication, network, power utility, security, forensics, surveillance, cyber-warfare and defence contract. We have assisted many government agencies in the area of threat management, intelligence gathering and research & development.



"Do not go where the path may lead, go instead where there is no path and leave a trail"

- Ralph Waldo Emerson



PHILOSOPHY & METHODOLOGY

To maintain high ethical standards in external and internal relationships. Decisions should be based on facts and objectively considered. Business should be kept in adjustment with the forces at work. People should be judged on the basis of their performance, not on personality, education or personal traits and skills. All business should be administered with a sense of competitive urgency.



VISION & PRINCIPLES

We believe in simplifying experience and providing disruptive pricing to enhance business competitiveness of our clients. Our strong fundamentals pushes innovation and we strongly believe in focusing on the few that are truly important and meaningful to us.

"Do not go where the path may lead, go instead where there is no path and leave a trail" - Ralph Waldo Emerson



PERSISTENCE

We do not say "NO" to our customers. We ensure every project that we undertake, we deliver with sheer excellence. We make sure delivered projects are monitored thoroughly even after completion. We maintain high level communications with our customers to ensure our products and services meet their standards and expectations.



PREPARATION

We expect nothing less from our people. We are industry certified from PMP (Project Management Institute), ITIL (IT Governance and Infrastructure/Service), Six Sigma (Business Process Improvement), Microsoft, Cisco (Networking), VMWARE (Virtual Machines), Citrix, BS7799/ISO 27002 (Security Policy), CIA/CISA (Audit Control and Security) and many other various certification in long standing industry. Our people are equipped, certified and ready to embark on any projects given in relation to our business.



MEDICAL EQUIPMENT **CATALOG**

DISPOSABLE GLOVES



1 DISPOSABLE NITRILE GLOVES



Provide protection from unwanted substances or potentially dangerous substances for both the professionals and patients. These gloves are made from high quality 100% nitrile (A synthetic co-polymer – Acrylonitrile-Butadiene) are Latex Free and are suitable for NR Latex- Sensitive Medical Professionals (Type 1 allergic reactions)

- ▶ Unique formulation makes the glove soft and flexible for a comfortable fit
- ▶ Micro-Textured surface provides non-slip grip when handling instruments
- ▶ The dual leached gloves have low chemical residue
- ▶ High tensile strength due to its special formulation
- ▶ Beaded cuff ensures secured and easy donning

3 DISPOSABLE LATEX SURGICAL GLOVE



Latex surgical gloves have been developed specifically with doctors in mind. Incorporating a proprietary latex formulation, we have been able to produce these gloves to give superior barrier protection yet provide comfort and all around dexterity for long hours during surgical operations. The gloves don easily and securely over surgical gowns and with a Micro-Textured surface, users are able to hold their instruments with more confidence. They also meet all regulatory requirements for Biocompatibility testing and Latex Protein Allergy.

- ▶ Unique latex formulation resulting in superior barrier protection with Low Allergenic Protein content
- ▶ Micro-Textured surface provides non-slip grip when handling instruments
- ▶ 300mm glove length provides secured donning at all times during surgical procedures

2 DISPOSABLE LATEX GLOVES



Superior price versus performance value and treated them with a proprietary Polymer Coat and Surface treatment to provide you with a pair of gloves free of powder for even more stringent contamination control.

- ▶ Unique latex formulation resulting in superior barrier protection with Low Allergenic Protein content
- ▶ Proprietary Polymer Coat and Surface treatment for easy donning without any dusting powder.
- ▶ Balanced weight versus thickness ratio for optimal performance usage
- ▶ Ambidextrous shape provides comfort even during long period of use

4 DISPOSABLE PVC / VINYL GLOVE



Vinyl is a synthetic, non-bio-degradable, protein-free material made from polyvinyl chloride (PVC) and plasticizers. Since vinyl gloves are synthetic and non-biodegradable, they have a longer shelf life than latex gloves, which often start to break down over time. Vinyl is also not very form fitting compared to latex or nitrile, giving the wearer limited dexterity and a higher chance that the glove with catch and tear.

- ▶ Latex-free
- ▶ Have a looser fit
- ▶ Are good for short-term, low-risk tasks

HEALTHSOURCE

Medical Grade Nitrile Gloves By XFYRE

A TILLER HEALTH COMPANY



Product Detail

Type	Powder-Free, Non-sterile	
Material Weight (gsm)	-	
Color	Blue, White, Green, Purple, Black	
Sizes	X-Small, Small, Medium, Large, X-Large	
MOQ	1 ctn	
Gross weight per item	3.5-5.5gram	
Packing (CTN)	box	100 units
	ctn	Box : 240x120x70 (mm) / 24x12x70 (cm) Carton: 360x250x250 (mm) / 36x25x25 (cm) 10box / ctn 3.5-5.5 kg
	units/ctn	1000
40 HC Container	ctn	3,200
	units/box	32,000
Manufacture location	Malaysia	

International Quality
Certificate Awarded :



- Protection from unwanted or dangerous substances
- Beaded cuff makes donning easy and helps prevent roll back
- Superior strength with better puncture resistance
- Full textured enhances wet and dry grip
- Thinner gauger improves tactile sensitivity
- Custom design enhances comfort and fit
- Provide an alternative solution for individuals who are allergic to natural rubber latex

Specification and Performance

Product Type	Nitrile Examination Glove Disposable		
Material	Nitrile Butadiene Rubber (NBR)		
Design & Feature	Ambidextrous. Beaded Cuff. Finger Textured		
Size Available	S, M, L, XL		
Donning Aid	Chlorinated		
Product Classification	FDA 80LYY 880.6250	MOD	Class I
Powder Content	Max. 2.0 milligram/glove		
Protein Content	N/A		
Performance Standard	ASTM 0-6319	EN 455-Part 1. 2 and 3	
Packing Style	Bulk Pack		
Shelf Life	Product shall have shelf life of 3 years from the date of manufacture with the above storage condition		
Storage Condition	Product shall be stored under 100m condition, avoid sunlight		

PHYSICAL DIMENSION - 3 MILS, 240 MM / 9"

Size	S	M	L	XL	Thickness(mm)	
Ave width (mm)	95.14	102.5	108.15	114.15	Cuff	0.040.10.02
Ave weight (gm)	9.0±1.0	9.5±1.0	10.0±1.0	10.5±1.0	Palm	0.070±0.02
Length (mm)	Min 240				Finger	0.080±0.02

PHYSICAL PROPERTIES - ASTM

Parameters	Tensile Strength (MPa)	Elongation at break (%)	Modulus at 500% (MPa)	Tensile Strength (MPa)	Elongation at break (%)	Modulus at 500% (MPa)
Hanser Result	18 - 28	650 - 750	Max 2.8	14 - 18	500 - 650	Max 28
ASTM Requirement (min)	Min 14	Min 650%	Max 2.8	Min 14	Min 500%	N/A

PHYSICAL PROPERTIES - EN

Parameters	Before Aging		After Aging	
	Force at Break (N)	Elongation at break (%)	Force at Break (N)	Elongation at break (%)
Hanser Result	9.0 - 11.0	N/A	6.0 - 10.0	N/A
ASTM Requirement (min)	Min 119 N	N/A	Min 6 N	N/A

CHEMICAL ANALYSIS

Requirement	Protein Content	Powder Content
Hanser Result	N/A	Below 2.0
FDA min requirement	N/A	Max 2.0 milligram/glove

PERFORMANCE

Inspection	Related Defects	Inspection Level	AQL
Watertight Test	Holes	G-1	1.0
Visual Inspection	Major Defects	G-1	2.5
	Minor Defects	G1	4.0
Physical Properties	Tensile Strength and Elongation	S-2	4.0
Physical Dimension	Measurement	S-2	4.0



PRODUCT STANDARD SPECIFICATIONS, PERFORMANCE & CONFORMANCE

THERACOM NITRILE DISPOSABLE GLOVE

Product	Nitrile Disposable Glove
Type	Powdered & Powder-Free, Non-sterile
Material	100% Synthetic Nitrile Latex
Design & Feature	Ambidextrous, Beaded Cuff, Finger Textured
Colour	Blue, White, Green, Purple, Black
Size Available	Extra-Small, Small, Medium, Large, Extra-Large
Design & Features	<p><u>Powdered:</u> Ambidextrous, finger textured or palm textured surface, beaded cuff, USP grade absorbable cornstarch</p> <p><u>Powder-Free:</u> Polymer coated or online single chlorinated, offline double chlorinated, ambidextrous, finger textured or palm textured surface, beaded cuff</p>
Donning Aid	Chlorinated
Powder Content	Max. 2.0 milligram/glove
Protein Content	N/A
Quality Standards	<ul style="list-style-type: none"> Conforms to ASTM D6319 and EN455 Standards Manufactured under QSR (GMP), ISO 9001:2015 and ISO 13485:2016 Quality Management System
Packing Style	100 pcs per box
Shelf Life	Product shall have shelf life of 5 years from the date of manufacture with the above storage condition
Storage Condition	Product shall be stored under room condition, avoid direct sunlight

GENERAL SPECIFICATION

Size	XS	S	M	L	XL
Weight (g)	3.5 ± 0.4	4 ± 0.4	4.5 ± 0.5	5 ± 0.5	5.5 ± 0.6
Net (Kg/Ctn)	3.9	4.4	5	5.5	6.1
Gross (Kg/Ctn)	5.4	5.9	6.5	7	7.6

PHYSICAL DIMENSIONS

Dimensions	Dimensions		
	XFYRE	ASTM D3578	EN 455
Type	Min 230, Min 240, 300 ± 10	Min 220 (XS, S) Min 230 (M, L, XL)	Min 240
Palm Width (mm)			
XS	76 ± 3	70 ± 10	≤ 80
S	84 ± 3	80 ± 10	80 ± 10
M	94 ± 3	95 ± 10	95 ± 10
L	105 ± 3	110 ± 10	110 ± 10
XL	113 ± 3	120 ± 10	≥ 110
Thickness : Single Wall (mm)			
Finger	Min 0.06	Min 0.05	Min 0.05
Palm	Min 0.06	Min 0.05	Min 0.05

PHYSICAL PROPERTIES

Property	Before Aging	After Aging
Tensile Strength (MPa)	Min 14	Min 14
Elongation at Break (%)	Min 500	Min 400
Force at Break (N)	Min 6	Min 6

DISPOSABLE FACE MASK



1 PROTECTIVE N95



Capable of filtering 95% of airborne particles. They meet CDC guidelines for Mycobacterium tuberculosis exposure control. As disposable particulate respirators, they are intended to reduce wearer exposure to certain airborne particles including those generated by electrocautery, laser surgery, and other powered medical instruments. As surgical masks, they are designed to be fluid resistant to splash and spatter of blood and other infectious materials.

- ▶ NIOSH approved N95 rating
- ▶ FDA cleared for use as a surgical mask
- ▶ Fluid Resistance 80 mmHg
- ▶ Flammability Rating Class I
- ▶ Adjustable nose clip
- ▶ Braided and stapled headbands
- ▶ Particulate Respirator and Surgical Mask

2 PROTECTIVE N99



Capable of filtering 99% of airborne particles. They meet CDC guidelines for Mycobacterium tuberculosis exposure control. As disposable particulate respirators, they are intended to reduce wearer exposure to certain airborne particles including those generated by electrocautery, laser surgery, and other powered medical instruments. As surgical masks, they are designed to be fluid resistant to splash and spatter of blood and other infectious materials.

- ▶ NIOSH approved N99 rating
- ▶ FDA cleared for use as a surgical mask
- ▶ Flammability Rating Class I
- ▶ Adjustable nose clip
- ▶ Braided and stapled headbands
- ▶ Particulate Respirator and Surgical Mask

3 3PLY-DISPOSABLE FACE MASK (95&98% BFE)



Disposable face (95&98% BFE) mask is great for protecting people from pollen, bacteria, allergens, dust, chemicals and smoke. Keep people stay healthy and safe when at work or out by protecting your airways from pollutants and allergens to help you breathe easier and stay germ free as much as possible.

- ▶ Water-repellent non-woven fabric, effective blocks visible objects such as droplets
- ▶ Meltblown non-woven, Filtered air containing bacteria suspended particles, BFE ≥ 95-98%
- ▶ Non-woven fabric, Absorb the hot air exhaled from the body
- ▶ Plastic nose clip - Fits the bridge of nose
- ▶ Ultrasonic quality spot welding

4 4PLY-DISPOSABLE FACE MASK (99% BFE)



Disposable face (99% BFE) mask is great for protecting people from pollen, bacteria, allergens, dust, chemicals and smoke. Keep people stay healthy and safe when at work or out by protecting your airways from pollutants and allergens to help you breathe easier and stay germ free as much as possible.

- ▶ Water-repellent non-woven fabric, effective blocks visible objects such as droplets
- ▶ Meltblown non-woven, Filtered air containing bacteria suspended particles, BFE ≥ 99%
- ▶ Non-woven fabric, Absorb the hot air exhaled from the body
- ▶ Plastic nose clip - Fits the bridge of nose
- ▶ Ultrasonic quality spot welding

DISINFECTION & CLEANING



1 HAND SANITIZER GEL



Hand Sanitizer kills 99.9% of germs instantly. Use anytime, anywhere: while in car, office, handbag, picnics, nappy change, travel, sports etc. Leaves your hands refreshed. Use as often as required.

- ▶ Get clean hands anytime, anywhere no water necessary
- ▶ Soft, gentle moisturizing formula

2 UNIVERSAL WIPES



A combined detergent and disinfectant product helps lift and remove dirt and germs as well as killing any germs that left on a surface. Coronaviruses can survive on surface for many hours but are removed by cleaning and disinfected

3 UNIVERSAL SPRAY



Universal spray for the disinfection and cleaning of non-invasive medical surface and equipment. the most effective formula on the market. A mix of biocides with different mechanisms of action prevents bacterial resistance and superbug formation.

- ▶ Multi-purpose
- ▶ Skin friendly and dermatologically tested
- ▶ No damages to surfaces or equipment
- ▶ Simple, easy and reliable

DISPOSABLE EQUIPMENT



1 DISPOSABLE FACE SHIELD



Face Shields are an important piece of Personal Protective Equipment (PPE). Surgical Face Shields provide over the top, side, and front face protection against splash and splatter of fluid-borne pathogens.

- ▶ Polyester lens
- ▶ Treated with antifog and antistatic coating
- ▶ Headpiece is held in place by a stretch strap
- ▶ Includes a latex-free foam band for comfortable extended wear

3 DISPOSABLE SURGICAL HOOD



Comfortable hood conforms to the head and neck, providing maximum coverage for hair and sideburns. Adjustable ties at the neck offer a secure and comfortable fit. This surgical hood provides complete head coverage. Blue hood has gentle elastic at neck for a comfortable fit.

- ▶ Single Use
- ▶ Preferably fluid resistant

2 DISPOSABLE SHOE COVER



Comfortable shoe covers are made of SMS fabric. Covers are available with or without skid-resistant tread.

- ▶ Single Use
- ▶ Nonslip, have a pvc sole which is completely sealed
- ▶ Knee-high, in order, be higher than bottom edge of the gown

4 DISPOSABLE BOOTS COVER/OVERBOOTS



This overboot is soft and microporous, strong and resistant to chemical splash and dust and can be used for a wide range of applications. Boot incorporates a synthetic leather anti-slip sole. They are anti-static and lint free and are suitable for clean room applications. Reduces microbiological growth and contamination in aseptic conditions.

- ▶ Single Use
- ▶ Boots are universal size with elasticated top and ankle ties

DISPOSABLE EQUIPMENT

5 DISPOSABLE PP COVERALL



Designed to protect the wearer from injury or the spread of infection or illness.

- ▶ Single Use
- ▶ Provide full body coverage, Splash-resistant, keep dust and chemicals off clothes.
- ▶ Elastic cuff will prevent the dust from entering.
- ▶ Disposable coverall can provide long-lasting protection.

8 DISPOSABLE HAIR NET



Our Hair net are made of heavyweight spunbond polypropylene. They are designed to provide additional strength while still offering breathability and comfort. Synthetic elastic offers a personalized fit.

- ▶ Single Use
- ▶ Preferably fluid resistant
- ▶ Adjustable and immovable once adjusted

6 DISPOSABLE PP+PE COVERALL



Designed to protect the wearer from injury or the spread of infection or illness.

- ▶ Single Use
- ▶ Provide full body coverage, Splash-resistant, keep dust and chemicals off clothes.
- ▶ Elastic cuff will prevent the dust from entering.
- ▶ Disposable coverall can provide long-lasting protection.

9 DISPOSABLE SURGICAL GOWN



One of the most important protective items during surgical procedures, surgical gowns play a vital role in maintaining aseptic conditions by preventing transfer of harmful micro-organisms, fluids and chemicals to and from the patient. Good quality surgical gown keeps bacteria from entering surgical wounds and at the same time protect surgeons and nurses against bodily fluids, bloods, secretion, excretion during surgical procedures.

7 DISPOSABLE SURGEON CAP



Easy-tie surgeon's cap is designed for particulate control. Our cap is easy to don and features adjustable ties. Lightweight, nonwoven material is comfortable and absorbent.

- ▶ Single Use
- ▶ Preferably fluid resistant
- ▶ Adjustable and immovable once adjusted

10 DISPOSABLE CPE APRON



Suitable for food processing, home cleaning, beauty salons, medical and chemical tests, industrial and agricultural workmanship and protection, painting and painting etc.

- ▶ single-use
- ▶ Made of polyester with pvc-coated
- ▶ Waterproof, oil proof, acid and alkali resistant, anti bacteria, non-toxic, tasteless, disposable, hygienic and environmental protection.

IR THERMAL FEVER DETECTION SYSTEM



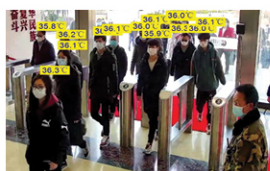
1 IR THERMAL FEVER DETECTION SYSTEM (IRTC-G2)

IRTC-G2 IS Hi Accuracy, Real-Time Face Recognition, Multi-Target, Back-tracking, Automated Detection System with Visual Alarm. I R T C - G 2 IR Fever Warning System can be applied to mass fever screening in crowded public places, which help to detect people with a potential fever and may contain or limit the spread of the COVID-19 through identification of infected individuals showing fever symptoms. IRTC-G2 combines advanced technology such as thermo-graphy human temperature measurement algorithm and AI intelligent face recognition to make the equipment accurate and easy to use.

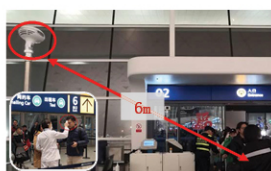
Its equipped with various powerful functions. Multi-target tracking can ensure that no targets are missed. Custom warning zones and hightemperature shielding settings can avoid interference from other high-temperature objects. When detect the febrile people, it supports automatic warning, tracking and photo taking for storage. Support video recording. Convenient to query and classify management. It is the ideal equipment for epidemic prevention in public places such as airports, stations, factories, schools, commercial centers and more.

FEATURES

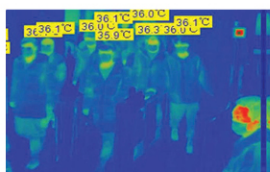
- ▶ Adopts 384x288-400x300 infrared uncooled Vox detector
- ▶ AI deep learning algorithm based on neural network, more accurate temperature measurement and lower false warning rate
- ▶ Accurate single/multi-point high temperature tracking and warning
- ▶ Equipped with black body, real-time temperature calibration, higher accuracy
- ▶ Face recognition detection function, more intelligent
- ▶ Stand-type, easy to move, standard PC with powerful analysis software



Higher efficiency on temperature detection



Temperature screening from 2~10 meters away



Automatic warning, photo capturing and storage while detecting the fever



DISCLAIMER NOTICE

General

The information provided by XFYRE, is for general informational purposes only. All information on the Brochure is provided in good faith, however we make no representation or warranty of any kind, express or implied, regarding the accuracy, adequacy, validity, reliability, availability or completeness of any information on the Brochure. UNDER NO CIRCUMSTANCE SHALL WE HAVE ANY LIABILITY TO YOU FOR ANY LOSS OR DAMAGE OF ANY KIND INCURRED AS A RESULT OF THE USE OF THE BROCHURE OR RELIANCE ON ANY INFORMATION PROVIDED ON THE BROCHURE. YOUR USE OF THE BROCHURE AND YOUR RELIANCE ON ANY INFORMATION ON THE BROCHURE IS SOLELY AT YOUR OWN RISK.

Product

Despite every effort to provide accurate images of each product's colour and design, actual colours and design may vary slightly, due to different device screen settings, the lighting in the installation location, slight differences in product finishes over time and other factors.

XFYRE will not accept responsibility for any colour or design differences that are not factory faults. In purchasing from XFYRE, you agree to accept the small risk that there will be a slight variation between the actual colour and design, and the representation on our brochure.

In addition, please be aware that colours and textured finishes often vary between manufacturers; for example, slightly different shades and degrees of 'Blue'.

Dimension

The dimension provided on this brochure is for general information purposes and use only.

Every endeavour is made to keep the product information complete and correct, however the customer is responsible for ensuring the product they purchase is suitable for their specific requirements.

We make every effort to give you accurate information regarding manufacturer reported sizing information and dimensions for our products in our size guides. However, please note that due to the nature of the manufacturing process and due to measurements made manually from time to time product sizing could vary. XFYRE is not responsible for sizing variations in the manufacturing process or the packaging.

Medical Equipment CERTIFIED

according to the following standards:



**MEDICAL DEVICE
AUTHORITY**



**INTERNATIONAL
ORGANIZATION FOR
STANDARDIZATION**

CERTIFICATIONS





FOOD AND DRUG ADMINISTRATION
(POLYMER PATIENT EXAMINATION GLOVE)
(LATEX PATIENT EXAMINATION GLOVE)
(FACE MASK FOR GENERAL PUBLIC/HEALTHCARE PERSONAL PER IIE GUIDANCE)





AMERICAN SOCIETY FOR TESTING AND MATERIALS (NITRILE EXAMINATION GLOVES FOR MEDICAL)

CERTIFICATIONS

SIRM QAS International Sdn. Bhd.
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www.sirm-qas.com.my

TEST REPORT
REPORT NO : 2021CE0119 PAGE : 1 OF 3

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THIS TEST REPORT IS ISSUED IN SECURED PDF SOFTCOPY

Applicant : XFYRE (M) SDN. BHD.
NO. 26, JALAN SUNGAI JELUH 32/192,
KAWASAN PERINDUSTRIAN KEMUNING,
42460 SHAH ALAM, SELANGOR, MALAYSIA

Manufacturer : XFYRE (M) SDN. BHD.
NO. 26, JALAN SUNGAI JELUH 32/192,
KAWASAN PERINDUSTRIAN KEMUNING,
42460 SHAH ALAM, SELANGOR, MALAYSIA

Product : THERACOM SAFEGLOVES

Reference Standard / Method of Test : ASTM D6124 - 06(2017) Standard Test Method for Residual Powder on Medical Gloves (Procedure I: Quantitation of Powder on Powder-free Gloves)

Description of sample : Received one (1) sample THERACOM SAFEGLOVES for testing which was not labelled.

Date Received of Complete Application : 15 January 2021

Job No. : J20211400072

Description of Test Results : The test result of the submitted test sample is described in Page 2 of this test report.

Issued Date : 22 January 2021

Approved Signatory:

(Signature)
IKM M/5212/8660/20
(MUHAMMAD ZUHAIRI BIN BOHARI)
Testing Executive

(Signature)
(HAHNAS BINTI MAHBUT)
Head
Chemical & Consumer Section
Testing Services Department

REPORT NO : 2021CE0119 PAGE : 2 OF 3

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TEST RESULTS

Product : THERACOM SAFEGLOVES
Test Method : ASTM D6124 - 06(2017) Standard Test Method for Residual Powder on Medical Gloves (Procedure I: Quantitation of Powder on Powder-free Gloves)

No.	Type of Test	Result
1.	Residual Powder, mg	Nil

(Signature)
(HAHNAS BINTI MAHBUT)
Head
Chemical & Consumer Section
Testing Services Department

REPORT NO : 2021CE0119 PAGE : 3 OF 3

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- The Test Report shall not be issued, amended, changed, varied or modified in any manner whatsoever by the Applicant or otherwise.
- If the Test Report is to be furnished to any third party or to the public, each such Test Report shall be furnished in full, legible and in its entirety.
- The Test Report shall not be reproduced and shall not in any event be used for any advertising purposes or whatsoever without written approval from the Head of Quality, Occupational Safety and Health & Environment (COSHE) of SIRM QAS International of No 1, Persiaran Dato' Menteri, Building 6, Section 2, P.O. Box 7035, 40700 Shah Alam, Selangor Darul Ehsan.
- Customer (Applicant/Manufacturer/Facility etc.) is not permitted to use any SIRM QAS International, SIRM or other SIRM's subsidiaries logo or words on packaging, sample's manual, technical specification, items and products.
- Subject to consent and written approval from the Head of Quality, Occupational Safety and Health & Environment (COSHE) of SIRM QAS International, the customer (Applicant/Manufacturer/Facility etc.) may use SIRM QAS International logo or word on the promotional materials and the Applicant shall only include the phrase, "A sample of this product has been tested by SIRM QAS International" (Test Report No. (date), (for what test), (to which standard) or such similar words which stress that only the sample was actually tested. This phrase shall only be used for the purpose of product advertisement or product promotion (eg. brochures, flyers, website). For avoidance of doubt, the statement shall not be used on the sample, packaging of the sample, items and products.
- In the event there is an investigation from a Government Regulatory Agency concerning the Applicant's Test Report, SIRM QAS International may disclose the information pertaining to the Test Report for purposes of such investigation.
- Further or in the alternative, it is strictly forbidden unless with prior written approval from the Chief Executive Officer of SIRM QAS International, to represent in any manner whatsoever that SIRM QAS International, SIRM and/or other SIRM's subsidiaries has endorsed, approved or validated the Product of the Applicant in any manner whatsoever.
- In the event the Applicant is found in breach of this provision, SIRM QAS International, SIRM and/or other SIRM's subsidiaries without prejudice to any other rights and remedies may take whatever action necessary including but not limited to:
 - Informing and placing a notice in the media;
 - Obtaining an injunction from Court (cost on a solicitor-client basis to be borne by the Applicant);
 - Refusing to accept any further Product for Testing Services from the Applicant or whosoever related to the Applicant, whether subsidiary or otherwise;
 - Instructing the Applicant to withdraw and recall the advertisement, statement or document in question and advertise a clarification and apology to SIRM QAS International, SIRM and/or other SIRM's subsidiaries twice in a national publication of SIRM QAS International's choice at the Applicant's sole cost; and
 - Informing or lodging a report pertaining to the Applicant's Test Report with the relevant authorities.
- SIRM QAS International is committed in supporting an environmentally-friendly business practices by reducing paper consumption, therefore we do not issue any hard copy of Test Report to the Applicant. However, additional certified true copy(ies) or softcopy of the Test Report may be issued upon request by the Applicant upon payment of the relevant fee. The certified true copy(ies) or softcopy of test report shall only be given for test report issued not more than three (3) years from the date of issuance.
- Issuance of Amendment Report due to the following reasons are chargeable to the Applicant:
 - Changes in details of the Applicant name and/or address;
 - Changes in details of the Manufacturer's name and/or address;
 - Changes in details of the Factory location name and/or address;
 - Changes in details of the model and/or type designation
- However, issuance of Supplementary Report due to the following reasons are FOC:
 - Map/size and type errors;
 - Missing technical information as agreed in PP1 form;
 - Test data not reported;
 - Mistake in reporting of test data
- Corrections to report shall only be allowed if the date of issuance of the original report has not exceeded 6 months and shall be limited to a maximum 3 times, after which case whichever occurs earlier, an Amendment or a Supplementary Report shall not be issued.

SIRIM QAS International Sdn. Bhd.
(Company No.: 199601027981 (412334-X))
No. 1, Persiaran Dairi Menteri, P.O. BOX 7035, Section 2,
40700 Shah Alam, Selangor Darul Ehsan, Malaysia
Tel: 03-55445199
Fax: 03-55446888
www.sirim-qas.com.my

TEST REPORT

REPORT NO : 2020CE1187 PAGE : 1 OF 3

This Test Report refers only to samples submitted by the applicant to SIRIM QAS International Sdn. Bhd. and tested by SIRIM QAS International Sdn. Bhd. This Test Report shall not be reproduced, except in full and shall not be used for any purpose by any means or forms (including but not limited to advertising purposes) without written approval from the Chief Executive Officer, SIRIM QAS International Sdn. Bhd. Please refer the last page for Conditions Relating to the Use of Test Report.

THIS TEST REPORT IS ISSUED IN SECURED PDF SOFTCOPY

Applicant : XFYRE (M) SDN. BHD.
No. 26, Jalan Sungai Jeluh 32/192,
Kawasan Perindustrian Kemuning, Seksyen 32,
42460 Shah Alam, Selangor Darul Ehsan, Malaysia

Manufacturer : Not Stated
Product : Safegloves
Reference Standard / Method of Test : ASTM D 6319 - 10 - Title: Standard Specification for Nitrile Examination Gloves for Medical Application

Description of sample : Received one (1) sample of Safegloves for testing which was identified as:
Brand: THERACOM
Product Description: Disposable Gloves

Date Received of Complete Application : 30 July 2020
Job No. : J20201400856
Description of Test Results : This test report covers only test clauses as requested by Applicant to SIRIM QAS International Sdn. Bhd. The test results for the submitted test sample as described in this test report complied with the requirement of the above reference standard at the respective clauses tested

Issued Date : 11 September 2020

Approved Signatory:

(MUHAMMAD RIZAL BIN ABDUL) (HAHNAS BINTI MAHBUT)
Senior Testing Executive Head
Chemical & Consumer Section Chemical & Consumer Section
Testing Services Department



ASTM INTERNATIONAL

AMERICAN SOCIETY FOR TESTING AND MATERIALS

(NITRILE EXAMINATION GLOVES FOR MEDICAL)

CERTIFICATIONS

REPORT NO : 2020CE1187 PAGE : 2 OF 3

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Test Results:

Product : Safegloves
Brand : THERACOM
Product Description : Disposable Gloves

No.	Type of Tests	Requirements ASTM D 6319-10 Table 1-Performance Requirements	Results	Remarks
1.	Sterility (ASTM D 6319-10 Clause 7.2)	No fails sterility	Not Applicable	*
2.	Freedom from holes (ASTM D 6319-10 Clause 7.3 & ASTM D 5151)	Free from holes	No holes detected (No water leakage observed)	Pass

No.	Type of Tests	Requirements ASTM D 6319-10 Table 2-Dimensions and Tolerances	Results	Remarks
3.	Dimensions (ASTM D 6319-10 Clause 7.4)	Size Medium (M):	Size Medium (M):	
3.1	Width	95±10mm	95mm	Pass
3.2	Length	Min., 230mm	234mm	Pass
3.3	Thickness:			
3.3.1	Finger	Min., 0.05mm	0.14mm	Pass
3.3.2	Palm	Min., 0.05mm	0.10mm	Pass

Note: * No sterile labelled

REPORT NO : 2020CE1187 PAGE : 3 OF 3

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Test Results:

Product : Safegloves
Brand : THERACOM
Product Description : Disposable Gloves

No.	Type of Tests	Requirements ASTM D 6319-10 Table 3-Physical Requirements	Results	Remarks
2.	Physical Properties (ASTM D 6319-10 Clause 7.5)			
2.1	Before Aging:			
2.1.1	Tensile Strength (ASTM D 412-16) Speed : 500 mm/min Dumbbell Type : Die C	Min., 14 MPa	24.2 MPa	Pass
2.1.2	Ultimate Elongation (ASTM D 412-16) Speed : 500 mm/min Dumbbell Type : Die C	Min., 500%	1059.1%	Pass
2.2	After Accelerated Aging: Temperature : 100 ± 2°C Duration : 22 ± 0.3 hours			
2.2.1	Tensile Strength (ASTM D 412-16) Speed : 500 mm/min Dumbbell Type : Die C	Min., 14 MPa	21.2 MPa	Pass
2.2.2	Ultimate Elongation (ASTM D 412-16) Speed : 500 mm/min Dumbbell Type : Die C	Min., 400%	1007.6%	Pass

Certifications



AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM F1862 - SYNTHETIC BLOOD PENETRATION)

CERTIFICATIONS

SIRIM QAS International Sdn. Bhd.
(Company No. 1996010781 (410334-X))
No 1, Persiaran Dato Menteri, P.O. BOX 7035, Section 2,
47000 Shah Alam, Selangor Darul Ehsan, Malaysia
Tel: 03-55445168
Fax: 03-55445658
www.sirim-qas.com.my

TEST REPORT
REPORT NO : 2021CE0089 PAGE : 1 OF 4

This Test Report refers only to samples submitted by the applicant to SIRIM QAS International Sdn. Bhd. and tested by SIRIM QAS International Sdn. Bhd. This Test Report shall not be reproduced, except in full and shall not be used for any purpose by any means or forms (including but not limited to advertising purposes) without written approval from the Head of Quality, Occupational Safety and Health & Environment (QOSH), SIRIM QAS International Sdn. Bhd. Please refer to the last page of this Test Report for Conditions Relating to the Use of Test Report.

THIS TEST REPORT IS ISSUED IN SECURED PDF SOFTCOPY

Applicant : XFYRE (M) SDN. BHD.
No. 26, Jalan Sungai Jeluh 32/192,
Kawasan Perindustrian Kemuning, Seksyen 32,
42460 Shah Alam, Selangor Darul Ehsan, Malaysia

Manufacturer : XFYRE (M) SDN. BHD.
No. 26, Jalan Sungai Jeluh 32/192,
Kawasan Perindustrian Kemuning, Seksyen 32,
42460 Shah Alam, Selangor Darul Ehsan, Malaysia

Product : THERACOM

Reference Standard / Method of Test : ASTM F1862 / F1862M - 17 -Title: Standard Test Method for Resistance of Medical Face Masks to Penetration by Synthetic Blood (Horizontal Projection of Fixed Volume at a Known Velocity)

Description of sample : Received one (1) sample of THERACOM for testing which was identified as:
Brand: SAFEMASK

Date Received of Complete Application : 22 December 2020
Job No. : J20201401695

Description of Test Results : This test report covers only test clauses as requested by Applicant to SIRIM QAS International Sdn. Bhd. The test results for the submitted test sample are described in next pages of this test report

Issued Date : 15 January 2021

Approved Signatory:

(MUHAMMAD RIZAL BIN ABDUL) Senior Testing Executive
(HAHNAS BINTI MAHBUT) Head
Chemical & Consumer Section
Testing Services Department

REPORT NO : 2021CE0089 **PAGE : 2 OF 4**

This Test Report refers only to samples submitted by the applicant to SIRIM QAS International Sdn. Bhd. and tested by SIRIM QAS International Sdn. Bhd. This Test Report shall not be reproduced, except in full and shall not be used for any purpose by any means or forms (including but not limited to advertising purposes) without written approval from the Head of Quality, Occupational Safety and Health & Environment (QOSH), SIRIM QAS International Sdn. Bhd. Please refer to the last page of this Test Report for Conditions Relating to the Use of Test Report.

Test Results:

Product : THERACOM
Brand : SAFEMASK

No.	Type of Test	Test Method	Result
1.	Resistance Against Penetration by Synthetic Blood (Splash Resistance)	ASTM F1862-17	Pass
1.1	Pressure: 21.3 kPa No. of Tested Specimens: 32		[There was no evidence of synthetic blood penetration on the inner facing of the material face mask (side contacting the wearer's face) at 21.3kPa pressure for total of 32 tested specimens]

SIRIM QAS International Sdn. Bhd.

REPORT NO : 2021CE0089 **PAGE : 3 OF 4**

This Test Report refers only to samples submitted by the applicant to SIRIM QAS International Sdn. Bhd. and tested by SIRIM QAS International Sdn. Bhd. This Test Report shall not be reproduced, except in full and shall not be used for any purpose by any means or forms (including but not limited to advertising purposes) without written approval from the Head of Quality, Occupational Safety and Health & Environment (QOSH), SIRIM QAS International Sdn. Bhd. Please refer to the last page of this Test Report for Conditions Relating to the Use of Test Report.

Appendix

Product : THERACOM
Brand : SAFEMASK

THERACOM (SAFEMASK) - Outer Layer

THERACOM (SAFEMASK) - Inner Layer

SIRIM QAS International Sdn. Bhd.

SIRIM QAS International Sdn. Bhd.
(Company No.: 199601037981 (410334-X))
No. 1, Persiaran Dato Menteri, D.O BOX 7033, Section 2,
40700 Shah Alam, Selangor Darul Ehsan, Malaysia
Tel: 03-55445159
Fax: 03-55445698
www.sirim-qas.com.my

TEST REPORT

REPORT NO : 2021CE0088 PAGE : 1 OF 4

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THIS TEST REPORT IS ISSUED IN SECURED PDF SOFTCOPY

Applicant : XFYRE (M) SDN. BHD.,
No. 26, Jalan Sungai Jeluh 32/192,
Kawasan Perindustrian Kemuning, Seksyen 32,
42460 Shah Alam, Selangor Darul Ehsan, Malaysia

Manufacturer : XFYRE (M) SDN. BHD.,
No. 26, Jalan Sungai Jeluh 32/192,
Kawasan Perindustrian Kemuning, Seksyen 32,
42460 Shah Alam, Selangor Darul Ehsan, Malaysia

Product : THERACOM

Reference Standard / Method of Test : ISO 22609:2004-Title: Clothing for Protection against Infectious Agents-
Medical Face Masks-Test Method for Resistance Against Penetration by Synthetic Blood (Fixed Volume, Horizontally Projected)

Description of sample : Received one (1) sample of THERACOM for testing which was identified as:

Brand: SAFEMASK

Date Received of Complete Application : 22 December 2020

Job No. : J20201401695

Description of Test Results : This test report covers only test clauses as requested by Applicant to SIRIM QAS International Sdn. Bhd. The test result for the submitted test sample are described in next pages of this test report

Issued Date : 15 January 2021

Approved Signatory:



 (MUHAMMAD RIZAL BIN ABDUL) (HAHNAS BINTI MAHBUT)
 Senior Testing Executive Head
 Chemical & Consumer Section Chemical & Consumer Section
 Testing Services Department



**INTERNATIONAL ORGANIZATION FOR
STANDARDIZATION**
(ISO 22609 - SYNTHETIC BLOOD PENETRATION)

CERTIFICATIONS


REPORT NO : 2021CE0088 PAGE : 2 OF 4

This Test Report refers only to samples submitted by the applicant to SIRIM QAS International Sdn. Bhd. and tested by SIRIM QAS International Sdn. Bhd. This Test Report shall not be reproduced, except in full and shall not be used for any purpose by any means or forms (including but not limited to advertising purposes) without written approval from the Head of Quality, Occupational Safety and Health & Environment (QOSH/E). SIRIM QAS International Sdn. Bhd. Please refer to the last page of this Test Report for Conditions Relating to the Use of Test Report.

Test Results:

Product : THERACOM
Brand : SAFEMASK

No.	Type of Test	Test Method	Result
1.	Resistance Against Penetration by Synthetic Blood (Splash Resistance)	ISO 22609: 2004	
1.1	Pressure: 21.3 kPa No. of Tested Specimens: 32		> 21.3 kPa (There was no sign of penetration, evidence of wetness or both appears on the viewing side of the total 32 specimens at 21.3kPa)




 (MUHAMMAD RIZAL BIN ABDUL)
 Senior Testing Executive
 Chemical & Consumer Section
 Testing Services Department


REPORT NO : 2021CE0088 PAGE : 3 OF 4

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Appendix

Product : THERACOM
Brand : SAFEMASK


 THERACOM (SAFEMASK) - Outer Layer

 THERACOM (SAFEMASK) - Inner Layer


 (MUHAMMAD RIZAL BIN ABDUL)
 Senior Testing Executive
 Chemical & Consumer Section
 Testing Services Department

Certifications

Nelson Labs. A Sotera Health company

NELSON LABS (DIFFERENTIAL PRESSURE) (FILTRATION EFFICIENCY)

CERTIFICATIONS

Nelson Labs.
A Sotera Health company

Sponsor:
ORISSA
MYRE (M) SDN BHD
NO.28 JALAN SUNGAI JELUH 32/162,
SEKSYEN 32,
SHAH ALAM, SELANGOR, 42400
MALAYSIA

Differential Pressure (Delta P) Final Report

Test Article: THERACOM - SAFEMASK
Study Number: 1340933-S01
Study Received Date: 07 Oct 2020
Testing Facility: Nelson Laboratories, LLC
6280 S. Redwood Rd.
Salt Lake City, UT 84123 U.S.A.
Test Procedure(s): Standard Test Protocol (STP) Number: STP0004 Rev 18
Deviation(s): None

Summary: The Delta P test is performed to determine the breathability of test articles by measuring the differential air pressure on either side of the test article using a manometer, at a constant flow rate. The Delta P test complies with EN 14683:2019, Annex C and ASTM F2100-19.

All test method acceptance criteria were met. Testing was performed in compliance with US FDA good manufacturing practice (GMP) regulations 21 CFR Parts 210, 211 and 820.

Test Side: Inside
Delta P Flow Rate: 8 Liters per minute (L/min)
Conditioning Parameters: 85 ± 5% relative humidity (RH) and 21 ± 5°C for a minimum of 4 hours

Test Article Number	Delta P (mm H ₂ O/cm ²)	Delta P (Faxom ²)
1	15.2	148.8
2	16.2	158.8
3	16.1	158.3
4	16.1	157.7
5	16.3	160.2

Adam Brigham electronically approved for
Study Director James Luckin 23 Oct 2020 14:28 (+00:00)
Study Completion Date and Time

801-230-7500 | nelsonlabs.com | sales@nelsonlabs.com

PTN004-001 Rev 22
Page 1 of 1

Nelson Labs.
A Sotera Health company

Sponsor:
ORISSA
MYRE (M) SDN BHD
No.28 Jalan Sungai Jeluh 32/162, Seksyen 32,
Shah Alam, Selangor, 42400
MALAYSIA

Latex Particle Challenge Final Report

Test Article: THERACOM - SAFE MASK
Study Number: 1340933-S01
Study Received Date: 07 Oct 2020
Testing Facility: Nelson Laboratories, LLC
6280 S. Redwood Rd.
Salt Lake City, UT 84123 U.S.A.
Test Procedure(s): Standard Test Protocol (STP) Number: STP0005 Rev 08
Deviation(s): None

Summary: This procedure was performed to evaluate the non-viable particle filtration efficiency (PFE) of the test article. Monodispersed polystyrene latex spheres (PSL) were nebulized (atomized), dried, and passed through the test article. The particles that passed through the test article were enumerated using a laser particle counter.

A one-minute count was performed with the test article in the system. A one-minute control count was performed without a test article in the system, before and after each test article. Control counts were performed to determine the average number of particles delivered to the test article. The filtration efficiency was calculated using the number of particles penetrating the test article compared to the average of the control values. During testing and controls, the air flow rate is maintained at 1 cubic foot per minute (CFM) ± 5%.

The procedure employed the basic particle filtration method described in ASTM F2299, with some exceptions; notably the procedure incorporated a non-neutralized challenge. In real use, particles carry a charge, thus this challenge represents a more natural state. The non-neutralized aerosol is also specified in the FDA guidance document on surgical face masks. All test method acceptance criteria were met. Testing was performed in compliance with US FDA good manufacturing practice (GMP) regulations 21 CFR Parts 210, 211 and 820.

Test Side: Inside
Area Tested: 01.5 cm²
Particle Size: 0.1 µm
Laboratory Conditions: 22.3°C, 21% relative humidity (RH) at 1104; 23°C, 21% RH at 1308
Average Filtration Efficiency: 99.987%
Standard Deviation: 0.0089

Trang Truong electronically approved for
Study Director Curtis Gerow 08 Nov 2020 23:18 (+00:00)
Study Completion Date and Time

801-230-7500 | nelsonlabs.com | sales@nelsonlabs.com

PTN005-001 Rev 7
Page 1 of 2

Nelson Labs.
A Sotera Health company

Study Number 1340933-S01
Latex Particle Challenge Final Report

Test Article Number	Test Article Counts	Average Control Counts	Filtration Efficiency (%)
1	5	13,294	99.982
2	5	13,036	99.982
3	3	14,431	99.979
4	4	14,680	99.973
5	6	14,252	99.956

801-230-7500 | nelsonlabs.com | sales@nelsonlabs.com

PTN005-001 Rev 7
Page 2 of 2

Certifications



GOOD DISTRIBUTION PRACTISE FOR MEDICAL DEVICE



NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH (PROTECTIVE N95)

CERTIFICATIONS

CARE
Certification International

CERTIFICATE OF CONFORMITY
GOOD DISTRIBUTION PRACTICE FOR MEDICAL DEVICE

This is to certify : **XYFRE (M) SDN BHD 1050175-D**

Address : No. 26, Jalan Sungai Jeluh 32/192, Kawasan Perindustrian Kemuning, Seksyen 32, 42460 Shah Alam, Selangor, Malaysia.

Certificate Number : **MYG12206710**

Scope of Certification : Local Authorized Representative, Import, Distribution (Including Transportation), Storage And Handling, And Documentation (Including Traceability Of Medical Device) As Listed In Annex 1.

Outsource Process : **XYFRE (M) SDN BHD**
Transportation.

Special Storage : No Special Storage.

Certificate Issue Date : **3rd December 2020**

Expiration Date : **2nd December 2021**

This certificate will be null and void if at any circumstances the compliance towards the standards stated above. The validity of the certificate can also be traced to the audit report generated for each every assessment or through our website www.carecert.net

CARE **Medical Device**
CERTIFICATION **MALAYSIA**

CAB Registration No. : **MDA/CAB 009**

Fleming Teo
Managing Director
CARE Certification International (M) Sdn. Bhd.

CARE
Certification International

Certificate No. : **ANNEX 1 MYG12206710**

XYFRE (M) SDN BHD 1050175-D

No.	DEVICE CATEGORY*
10	Single-Use Devices

*List of device categories:
01 Active implantable devices
02 Anesthetic and respiratory devices
03 Dental Devices
04 Electro mechanical medical devices
05 Hospital hardware
06 In vitro diagnostic devices
07 Non-active implantable devices
08 Ophthalmic and optical devices
09 Reusable devices
10 Single-use devices
11 Assistive products for persons with disability
12 Diagnostic and therapeutic radiation devices
13 Complementary therapy devices
14 Biologically-derived devices
15 Healthcare facility products and adaptations
16 Laboratory equipment
17 Medical software
18 Others: Please specify with justification for any additional categories

XYFRE (M) SDN BHD

CARE Certification International (M) Sdn. Bhd.
No. 3-16, IOI Boulevard, Jalan Kemari 6, Bandar Puchong Jaya, 47170 Puchong, Selangor Darul Ehsan, Malaysia.

CARE
Certification International

CERTIFICATE OF TESTING

Reference No. : 03-148/02/2020/32/03-1

Client Company : **XYFRE (M) Sdn Bhd**

Client Company Address : No. 26, Jalan Sungai Jeluh 32/192, Kawasan Perindustrian Kemuning, Seksyen 32, 42460 Shah Alam, Selangor, Malaysia.

Test Item : **Filtering Face Piece (FFP)**

Brand/Model : **Theracom Safemask N95**

Lot/Batch/Production No. : **-**

Quantity : **21**

Date of Sample(s) Received : **24th August 2020**

Date (s) of Testing : **24-27th August 2020**

Test Specification : **See page 2**

Testing Laboratory : **Dust Mask Laboratory (DML), NIOSH Malaysia**

PREPARED BY : **Haalish bin Mahmud** DATE : **27/8/2020**

APPROVED BY : **Baderin bin Osman** DATE : **27/8/2020**


BADERIN BIN OSMAN
TECHNICAL EXPERT (TTE)
CONSTRUCTION, RESEARCH & DEVELOPMENT DEPARTMENT
NIOSH


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DUST MASK LABORATORY (DML)
NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY & HEALTH (NIOOSH)
Lot 1, Jalan 21/2, Section 15, 43650 Bandar Baru Rengas, Selangor, Malaysia
Tel: (63) - 8789 2300 Fax: (63) - 8336 2900 URL: www.niosh.com.my

CERTIFICATE OF TESTING

Reference No.	03-148/02/2020/32/01-1
Client Company	Xlyre (M) Sdn Bhd
Client Company Address	No. 26, Jalan Sungai Jeluh 32/192, Kawasan Perindustrian Kemuning, Seksyen 32, 42460 Shah Alam, Selangor.
Test Item	Procedure Face Mask
Brand/Model	Safemask Procedure Face Mask
Lot/Batch/Production No.	-
Quantity	3
Date of Sample(s) Received	21 st July 2020
Date (s) of Testing	23 rd July 2020
Test Specification	See page 2
Testing Laboratory	Dust Mask Laboratory (DML), NIOSH Malaysia

PREPARED BY:  DATE: 23/7/2020
Hadijah binti Mahmud

APPROVED BY:  DATE: 23/7/2020
BADERIN BIN OSMAN
TECHNICAL EXPERT (FET)
CONSULTATION, RESEARCH & DEVELOPMENT DIVISION
NIOOSH



**NATIONAL INSTITUTE OF OCCUPATIONAL
SAFETY AND HEALTH**
(FACE MASK)



NELSON LABS
(BACTERIAL FILTRATION EFFICIENCY)

CERTIFICATIONS

Nelson Labs.
A Sotera Health company

Sponsor:
Orissa binti
XFYRE (M) Sdn. Bhd.
No.26 Jalan Sungai Jeluh 32/192,
Seksyen 32
Shah Alam, Selangor, 42460
MALAYSIA

Bacterial Filtration Efficiency (BFE) Final Report

Test Article: THERACOM - SAFE MASK
Study Number: 1340034-S01
Study Received Date: 07 Oct 2020
Testing Facility: Nelson Laboratories, LLC
6280 S. Redwood Rd.
Salt Lake City, UT 84123 U.S.A.
Test Procedure(s): Standard Test Protocol (STP) Number: STP0004 Rev 18
Deviation(s): None

Summary: The BFE test is performed to determine the filtration efficiency of test articles by comparing the bacterial control counts upstream of the test article to the bacterial counts downstream. A suspension of *Staphylococcus aureus* was aerosolized using a nebulizer and delivered to the test article at a constant flow rate and fixed air pressure. The challenge delivery was maintained at 1.7×10^7 colony forming units (CFU) with a mean particle size (MPS) of $3.0 \pm 0.3 \mu\text{m}$. The aerosols were drawn through a six-stage, viable particle, Andersen sampler for collection. This test method complies with ASTM F2101-19 and EN 14683:2019, Annex B.

All test method acceptance criteria were met. Testing was performed in compliance with US FDA good manufacturing practice (GMP) regulations 21 CFR Parts 210, 211 and 320.

Test Side: Inside
BFE Test Area: 40 cm^2
BFE Flow Rate: 28.3 Liters per minute (L/min)
Conditioning Parameters: $85 \pm 5\%$ relative humidity (RH) and $21 \pm 5^\circ\text{C}$ for a minimum of 4 hours
Test Article Dimensions: $170 \text{ mm} \times 150 \text{ mm}$
Positive Control Average: 3.0×10^7 CFU
Negative Monitor Count: <1 CFU
MPS: $2.9 \mu\text{m}$

Sean Shepherd electronically approved for
Study Director

James Luskin
Study Completion Date and Time
08 Nov 2020 17:29 (+00:00)

801-290-7500 | nelsonlabs.com | info@nelsonlabs.com
PFT004-001 Rev 02
Page 1 of 2

Nelson Labs.
A Sotera Health company

Study Number 1340034-S01
Bacterial Filtration Efficiency (BFE) Final Report

Results:

Test Article Number	Percent BFE (%)
1	>99.9 ^a
2	>99.9 ^a
3	>99.9 ^a
4	>99.9 ^a
5	>99.9 ^a

^a There were no detected colonies on any of the Andersen sampler plates for this test article.

The filtration efficiency percentages were calculated using the following equation:

$$\% \text{ BFE} = \frac{C - T}{C} \times 100$$
 C = Positive control average
 T = Plate count total recovered downstream of the test article
 Note: The plate count total is available upon request

801-290-7500 | nelsonlabs.com | info@nelsonlabs.com
PFT004-001 Rev 02
Page 2 of 2

Certifications



**EUROPEAN AUTHORIZED
REPRESENTATIVE CENTER**
(SAFE MASK PRECEDURE EARLOOP FACE MASK)
(SAFE GLOVE LATEX DISPOSABLE GLOVE)
(SAFE GLOVE NITRILE DISPOSABLE GLOVE)

CERTIFICATIONS

E.A.R.-CERTIFICATE

(ARTICLE 14.2 OF THE DIRECTIVE 93/42/EEC ON MEDICAL DEVICES)

REF. NO: AF 0588-2021 ORDER NO: YA 0052-2020 N DATE: 14/01/2021

MANUFACTURER: MYRE SD Sdn Bhd, No. 26, Jalan Sungai Juhoh 32192, Kemaman Production Kuanting, Seremban 2, 70400 Dab, Seremban, Dab, Ehsan, Malaysia

FACILITIES: MYRE SD Sdn Bhd, No. 26, Jalan Sungai Juhoh 32192, Kemaman Production Kuanting, Seremban 2, 70400 Dab, Seremban, Dab, Ehsan, Malaysia

PRODUCT CATEGORIES: Please See Annex A - List of Devices (3 Devices, 1 Page)

MODELS: Please See Annex A - List of Devices (3 Devices, 1 Page)

The European Authorized Representative Center Obelis s.a. declares that the aforementioned manufacturer has fulfilled the essential requirement of appointing a European Authorized Representative in accordance with article 14.2 of the MDD 93/42/EEC and to the terms and conditions set out in the agreement entered into force on 1st October 2020.*

Obelis s.a. - E.A.R.C.
Registered Address: 84 General Willems 33, 1030 Brussels
Tel: +32 2 732 59 54 - Fax: +32 2 732 60 03
Mr. G. Elkayam CEO
Obelis s.a.

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*This certificate is not a confirmation of product notification nor an approval to place products on the market.
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Registered Address: 84 General Willems 33, 1030 Brussels | Registered Office Address: 84 General Willems 33, B-1200 Brussels | Belgium
T: +32 (0) 2 732 59 54 | F: +32 (0) 2 732 60 03 | Email: mail@obelis.net | Website: www.obelis.net
VAT: BE-08053416 - 201002819

Order No: YA 0052-2020N
Ref No: AF 0588-2021

11 of 1

Annex A - List of Devices

(Article 9, section 1 of the Directive 93/42/EEC on medical devices)

#	Catalogue reference number	Commercial name	Generic Device Term	Short description and intended use	MDON	Class	Rule
1.	910306-A	SAFE MASK Procedure Earloop Face Mask	Safe Disposable Face Mask	Procedure Earloop Face Mask is 4-ply surgical mask that is to be used as a barrier to prevent air borne transfer of bacteria, particles, and it offers filtration efficiency, fluid-resistant, superior comfort and breathability to help reduce the spread of potentially infectious particles, blood and body fluids. It is designed to be used in hospital, clinic, operating theater and clean room environment, etc.	91177	I	1
2.	910312-A	SAFE GLOVE Latex Disposable Glove	Latex Disposable Glove	Latex Disposable Glove is intended as a protective barrier when worn on the hands of healthcare providers during patient examination/treatment or for other sanitary purposes. Its inner surface is not covered with powder and it does not include antimicrobial agents/materials.	4172	I	5
3.	910311-A	SAFE GLOVE Nitrile Disposable Glove	Nitrile Disposable Glove	Nitrile Disposable Glove is intended as a protective barrier when worn on the hands of healthcare providers during patient examination/treatment or for other sanitary purposes. Its inner surface is not covered with powder and it does not include antimicrobial agents/materials.	54286	I	5

* Annex A is part of the Agreement.
** This has been produced for classification based on the classification claim of the manufacturer and under sole responsibility (MDON) of the manufacturer.
*** This has been produced for classification based on the classification claim of the manufacturer and under sole responsibility (MDON) of the manufacturer.

Obelis s.a.
Signature:
Obelis s.a. - E.A.R.C.
Registered Address: 84 General Willems 33, 1030 Brussels
Tel: +32 2 732 59 54 - Fax: +32 2 732 60 03

REPORT NO : 2020CE1187 PAGE : 3 OF 3

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Test Results:

Product: Safegloves
Brand: THERACOM
Product Description: Disposable Gloves

No.	Type of Tests	Requirements ASTM D 6319 -10 Table 3-Physical Requirements	Results	Remarks
2.	Physical Properties (ASTM D 6319-10 Clause 7.5)			
2.1	Before Aging:			
2.1.1	Tensile Strength (ASTM D 412-16) Speed : 500 mm/min Dumbbell Type : Die C	Min., 14 MPa	24.2 MPa	Pass
2.1.2	Ultimate Elongation (ASTM D 412-16) Speed : 500 mm/min Dumbbell Type : Die C	Min., 500%	1059.1%	Pass
2.2	After Accelerated Aging: Temperature : 100 ± 2°C Duration : 22 ± 0.3 hours			
2.2.1	Tensile Strength (ASTM D 412-16) Speed : 500 mm/min Dumbbell Type : Die C	Min., 14 MPa	21.2 MPa	Pass
2.2.2	Ultimate Elongation (ASTM D 412-16) Speed : 500 mm/min Dumbbell Type : Die C	Min., 400%	1007.6%	Pass

EN 374



STANDARD FOR CHEMICAL SAFETY GLOVES

(EN374-1)

CERTIFICATIONS

REPORT NO : 2020CE1265 PAGE : 4 OF 6


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Test Results:

Product : Safegloves
Brand : THERACOM
Product Description : Disposable Gloves

No.	Type of Tests	Requirements BS EN 420:2003+A1:2009 Clause 4 - General Requirements	Results	Level of Performance
1.	Glove Design and Construction - General (BS EN 420:2003+A1:2009 Clause 4.1)	The protective glove shall be designed and manufactured so that in the foreseeable conditions of use for which it is intended, the user can perform related activity normally whilst enjoying appropriate protection at the highest level.	The protective glove was designed and manufactured so that in the foreseeable conditions of use for which it is intended, the user can perform related activity normally whilst enjoying appropriate protection at the highest level.	Pass
		When the glove construction include seams, the material and strength of the seams shall be such that the overall performance of the glove is not significantly decreased.	The material strength for overall performance of the glove was not significantly decreased (Measured Material Strength: 13.8 Mpa)	Pass
2.	Resistance of glove materials to water penetration (BS EN 420:2003+A1:2009 Clause 4.2)	For leather gloves: Time penetration Level 1 : 30 mins Level 2 : 60 mins Level 3 : 120 mins Level 4 : 180 mins For textile materials: To be reported based on method in EN 20811	Not Applicable	X

Note:
0 : Indicates that the glove falls below the minimum performance level for the given individual hazard
X : Indicates that the glove has not been submitted to the test or the test method appears not to be suitable for the glove design or material



REPORT NO : 2020CE1265 PAGE : 5 OF 6

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Test Results:

Product : Safegloves
Brand : THERACOM
Product Description : Disposable Gloves

No.	Type of Tests	Requirements BS EN 420:2003+A1:2009 Clause 4 - General Requirements	Results	Level of Performance
3.	Inocuousness of protective gloves (BS EN 420:2003+A1:2009 Clause 4.3)			
3.1	Determination of pH value (BS EN 420:2003+A1:2009 Clause 4.3.2 & EN 1413)	3.5 to 9.5	7.6	Pass
3.2	Determination of Chromium VI content (BS EN 420:2003+A1:2009 Clause 4.3.3 & EN 1413)	Leather type: < 3.0 mg/kg	Not Applicable (Not leather type)	X
3.3	Determination of extractable protein content (BS EN 420:2003+A1:2009 Clause 4.3.4)		27 µg/g	X
4.	Cleaning (BS EN 420:2003+A1:2009 Clause 4.4)	Subject to Care Instructions provided	Not Applicable (Disposable Type)	X

Note:
0 : Indicates that the glove falls below the minimum performance level for the given individual hazard
X : Indicates that the glove has not been submitted to the test or the test method appears not to be suitable for the glove design or material

⁽¹⁾ Extractable Protein Content Test was subcontracted to Global Testing and Consultancy for Rubber (G-TACR), Sungai Buloh, Selangor



REPORT NO : 2020CE1265 PAGE : 6 OF 6

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Test Results:

Product : Safegloves
Brand : THERACOM
Product Description : Disposable Gloves

No.	Type of Tests	Requirements BS EN 420:2003+A1:2009 Clause 5 - Comfort and Efficiency	Results	Level of Performance
1.	Sizing (BS EN 420:2003+A1:2009 Clause 5.1)			
1.1	Sizes and measurements of glove (BS EN 420:2003+A1:2009 Clause 5.1.2)	Minimum length of glove: Glove size 6 : 220mm Glove size 7 : 230mm Glove size 8 : 240mm Glove size 9 : 250mm Glove size 10 : 260mm Glove size 11 : 270mm	Size 8: 244mm (Size Medium)	Pass
2.	Dexterity (BS EN 420:2003+A1:2009 Clause 5.2)	Smallest diameter of pin: Level 1 : 11mm Level 2 : 9.5mm Level 3 : 8mm Level 4 : 6.5mm Level 5 : 5mm	5mm	Level 5
3.	Water Vapour Transmission and Absorption (BS EN 420:2003+A1:2009 Clause 5.3)			
3.1	Water Vapour Transmission ⁽¹⁾ (BS EN 420:2003+A1:2009 Clause 5.3.1 & 6.3)	≥ 5 mg / (cm ² .h)	20	Pass
3.2	Water Vapour Absorption (BS EN 420:2003+A1:2009 Clause 5.3.2 & 6.4)	≥ 8 mg/cm ² for 8 hours	Not Applicable (Glove not designed to reduce effect of perspiration)	X

Note:
0 : Indicates that the glove falls below the minimum performance level for the given individual hazard
X : Indicates that the glove has not been submitted to the test or the test method appears not to be suitable for the glove design or material

⁽¹⁾ The Water Vapour Transmission test was conducted by SIRIM QAS Int. Sdn. Bhd. Mechanical & Automotive Section



EN 374



STANDARD FOR CHEMICAL SAFETY GLOVES

(EN374-5 : PENETRATION BY BLOOD-BORNE)

CERTIFICATIONS

SIRIM Berhad
Industrial Biotechnology Research Centre, Building 19
Tel: 03-5546953/6960
Fax: 03-55469698

TEST REPORT

REPORT NO: R1307/20/B19/91 PAGE: 1 of 2

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Applicant: Orasa
Company: XFYRE (M) SDN. BHD.
Address: No. 26, Jalan Sungai Jelut 32/162, Kawasan Perindustrian Kemuning, Seksyen 32, 42460 Shah Alam, Selangor Darul Ehsan, MALAYSIA.
Manufacturer: Not stated
Address: Not stated
Sample: Disposable glove
Reference standard / Method of Test: Clothing for protection against contact with blood and body fluids — Determination of resistance of protective clothing materials to penetration by blood-borne pathogens — Test method using Phi-X174 bacteriophage. ISO 18604:2004(E).
Sample description: Received one (1) sample with the following identification for testing:

No.	Sample marking	Brand	Size	Quantity
1.	THERACOM - SAFEGLOVES	Nitrile disposable glove	Not stated	3 pairs

Date received: 3 November, 2020
Date test started: 9 November, 2020
Job No: J 1307
Issue date: 16 November, 2020

Approved signatories:

(MOHD KHAIRUL AZWAN AHMAD)
ANALYST
SIRIM Berhad

(MOHD MAHAJUDDIN HUSSIN)
REVIEWER
SIRIM Berhad

SIRIM Berhad
19, JALAN SENGAT 13, 47000 SENGAT, SELANGOR DARUL EHSAN, MALAYSIA
Tel: 03-5546953
Fax: 03-55469698
Website: www.sirim.my

REPORT NO: R1307/20/B19/91 PAGE: 2 of 2

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Compatibility ratio: 1.32

Experimental condition:

a) Exposure: Procedure B

b) Pressure / time sequence: 0 kPa for 5 minutes, followed by 14.0 kPa for 1 minutes, followed by 0 kPa for 4 minutes.

c) Retaining screen: A retaining screen was used to support the specimen

Result:

Specimen	Sample			Positive control	Negative control	Blank control
	Replicate 1	Replicate 2	Replicate 3			
Pre-test g challenge filter (PFU/mL)				3.60E+08		<1
Post-test g challenge filter (PFU/mL)	3.40E+08	3.60E+08	2.10E+08	3.35E+08	2.70E+08	<1
Settle plate (PFU)	<1	<1	<1	<1	<1	<1
Visual liquid penetration	None seen	None seen	None seen	Yes	None seen	None seen
Assay filter (PFU/mL)	<1	<1	<1	TWTC	<1	<1
Test result:	PASS	PASS	PASS	Acceptable	Acceptable	Acceptable

Note:
PFU – Plaque Forming Unit
TWTC – PFU value too numerous to count
g – Phi-X174 Bacteriophage
A value of <1 PFU/mL is reported for assay plates showing no plaques

Comments:
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 - Obtaining an injunction from Court (cost on a solicitor-client basis to be borne by the Applicant);
 - Refusing to accept any further Product for Testing Services from the Applicant or whatsoever related to the Applicant, whether subsidiary or otherwise;
 - Instructing the Applicant to withdraw and recall the advertisement, statement or document in question and advertise a clarification and apology to SIRIM Berhad and/or other SIRIM's subsidiaries twice in a national publication of SIRIM Berhad's choice at the Applicant's sole cost; and
 - Informing or lodging a report pertaining the Applicant's Test Report with the relevant authorities.
- Certified true copies of the Test Report may be issued upon request by the applicant upon payment of the relevant fee.
- Corrections to test report shall only be allowed within 6 months from issuance date of the Test Report of the relevant fee and shall be limited to maximum 3 times, after either case whichever occurs earlier, a new Test Report shall be issued and replace the previous one (having error(s) or lack of information) with relevant fee. Issuance of Supplementary Report to the original Test Report shall be for the following:
 - Misprints and type errors;
 - Missing technical information;
 - Test data not reported;
 - Mistake in reporting of test data.
- Any amendment requested from customers on the test report issued shall be in writing.
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(Revision 1.3.2020)

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Fax: 03-55465088
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TEST REPORT
REPORT NO : 2020CE1265 PAGE : 1 OF 6

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Applicant : XFYRE (M) SDN. BHD.
No. 26, Jalan Sungai Jeluh 32/192,
Kawasan Perindustrian Kemuning, Seksyen 32,
42400 Shah Alam, Selangor Darul Ehsan, Malaysia

Manufacturer : Not Stated

Product : Safegloves

Reference Standard / Method of Test : BS EN ISO 374-1:2016+A1:2018 – Title: Protective gloves against dangerous chemicals and micro-organisms - Part 1: Terminology and performance requirements for chemical risks

Description of sample : Received one (1) sample of Safegloves for testing which was identified as:
Brand: THERACOM
Product Description: Disposable Gloves

Date Received of Complete Application : 30 July 2020

Job No. : J20201400855

Description of Test Results : This test report covers only test clauses as requested by Applicant to SIRIM QAS International Sdn. Bhd. The test results for the submitted test sample as described in this test report complied with the requirement of the above reference standard at the respective clauses tested

Issued Date : 02 December 2020

Approved Signatory:

(MUHAMMAD RIZAL BIN ABDUL) Senior Testing Executive

(HAHNAS BINTI MAHBUT) Head
Chemical & Consumer Section
Testing Services Department

EN 374



STANDARD FOR CHEMICAL SAFETY GLOVES (EN374-1)

CERTIFICATIONS

REPORT NO : 2020CE1265 PAGE : 2 OF 6

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Test Results:

Product : Safegloves
Brand : THERACOM
Product Description : Disposable Gloves

No.	Type of Tests	Requirements BS EN ISO 374-1:2016+A1:2018 Clause 5-Performance Requirements	Results	Remarks
1.	General Requirements (BS EN ISO 374-1:2016+A1:2018 Clause 5.1)	Protective gloves against dangerous chemicals shall comply with the requirements given in EN 420:2009 Clause 4, Clause 5 and Clause 7	Please refer page 4 to 6	-
2.	Penetration (BS EN ISO 374-1:2016+A1:2018 Clause 5.2)	Protective gloves shall not leak when tested according to EN 374-2:2014 Clause 7.2.7.3	There was no emergence of air bubbles observed on the tested gloves	Pass
2.1	Air Leak Test (BS EN ISO 374-2:2019 Clause 7.2)		There were no water leaks observed on the tested gloves	Pass
2.2	Water Leak Test (BS EN ISO 374-2:2019 Clause 7.3)			
3.	Degradation (BS EN ISO 374-1:2016+A1:2018 Clause 5.3)	The degradation (DR) shall be determined according to EN 374-4 for each chemical claimed in the marking and reported in the user instruction	There was no resistance to degradation by chemicals claimed in the marking and user instruction	-

REPORT NO : 2020CE1265 PAGE : 3 OF 6

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Test Results:

Product : Safegloves
Brand : THERACOM
Product Description : Disposable Gloves

No.	Type of Tests	Requirements BS EN ISO 374-1:2016+A1:2018 Clause 5-Performance Requirements	Results	Performance Level
4.	Permeation (BS EN ISO 374-1:2016+A1:2018 Clause 5.3)	Permeation performance level: Measured breakthrough time, min Permeation performance level Type A: The permeation shall be at least level 2 against minimum of six test chemicals listed in BS EN ISO 374-1 Table 2 Type B: The permeation shall be at least level 2 against minimum of three test chemicals listed in BS EN ISO 374-1 Table 2 Type C: The permeation shall be at least level 1 against minimum of one test chemicals listed in BS EN ISO 374-1 Table 2	Measured breakthrough time, min > 10 > 30 > 60 > 120 > 240 > 480 Permeation performance level 1 2 3 4 5 6	
4.1	Sodium Hydroxide 40%		> 480	Level 6
4.2	Hydrogen Peroxide 30%*		21 to 30	Level 1
4.3	Formaldehyde 37%		> 480	Level 6

Note:
The test chemicals used were based on the applicant request
* Permeation test using test chemical Hydrogen Peroxide 30% was subcontracted to external lab

SIRIM QAS International Sdn. Bhd.
(Company No.: 1960103781) (410334-X)

No. 1, Persiaran Datar Menanti, Section 2, P.O. Box 7035
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TEST REPORT

REPORT NO.: 2020PC0036 PAGE: 1 OF 3

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Applicant: XFYRE (M) SDN BHD
No. 28 Jalan Sungai Jeli 32/192
Kawasan Perindustrian Kemuning, Seksyen 32
40460 Shah Alam
Selangor

Manufacturer: - same as above -

Product: THERACOM
SAFEGLOVES - NITRILE GLOVES

Reference Standard/ Method of Test: 1) BS EN ISO 374-5: 2016 - Protective Gloves Against Dangerous Chemicals and Micro-Organisms Part 5: Terminology and Performance Requirements for Micro-Organisms Risks (ISO 374-5: 2016)
2) EN ISO 374-2: 2010 - Protective Gloves Against Dangerous Chemicals and Micro-Organisms Part 2: Determination of Resistance to Penetration

Description of Sample: One (1) box of new glove sample was received on 9 November 2020. Photograph of the glove sample is shown in Figure 1 in Page 2 of this report.

Date Received of Complete Application: 9 November 2020

Job No.: J0201460949

Description of Test Results: This test report covers only test clauses as requested by Applicant of SIRIM QAS International Sdn. Bhd. The test results for the submitted test sample as described in this test report complied with the requirements of the above reference standards at the respective clauses tested.

Issued Date: 13 November 2020

Approved Signatories:

(Rosli Ahmad)
Testing Executive

(Rahmad Abd Shukor)
Head
Plastics and Composite Materials Section
Testing Services Department

EN 374



**STANDARD FOR CHEMICAL
SAFETY GLOVES**
(EN374-5 : PENETRATION AGAINST VIRUS)

CERTIFICATIONS

REPORT NO.: 2020PC0036 PAGE: 2 OF 3

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Description of Sample:




Figure 1. Photograph of THERACOM SAFEGLOVES - NITRILE GLOVES Sample

(Rahmad Abd Shukor)
Head
Plastics and Composite Materials Section
Testing Services Department

REPORT NO.: 2020PC0036 PAGE: 3 OF 3

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Results:

**THERACOM
SAFEGLOVES - NITRILE GLOVES**

NO.	TEST	REQUIREMENT	RESULT	REMARK
1	Penetration Against Viruses - Air Leak Test Test method: Clause 7.2 of EN 374-2: 2014 Test parameters: • Thickness: 0.08 mm • Pressure applied: 0.5 - 2.0 kPa • Duration: 35 seconds Test date: 12 November 2020	Clause 5.2 of BS EN ISO 374-5: 2016 Protective gloves against virus, bacteria and fungi shall not leak when tested in accordance to EN 374-2:2014	No leakage was observed on the glove specimens after test.	Pass
2	Penetration Against Viruses - Water Leak Test Test method: Clause 7.3 of EN 374-2: 2014 Test parameters: • Water capacity: 1,000 ml • Duration: 2 minute Test date: 12 November 2020	Clause 5.2 of BS EN ISO 374-5: 2016 Protective gloves against virus, bacteria and fungi shall not leak when tested in accordance to EN 374-2:2014	No leakage was observed on the glove specimens after test.	Pass



EN 420

STANDARD FOR CHEMICAL SAFETY GLOVES (EN420)

CERTIFICATIONS

SIRM QAS International Sdn. Bhd.
(Company No.: 1986103781 (418334-K))
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TEST REPORT
REPORT NO.: 2020CE1264 PAGE: 1 OF 4

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Applicant: XFYRE (M) SDN. BHD.,
No. 26, Jalan Sungai Jelut 32/192,
Kawasan Perindustrian Kemuning, Seksyen 32,
42460 Shah Alam, Selangor Darul Ehsan, Malaysia

Manufacturer: Not Stated

Product: Safegloves

Reference Standard / Method of Test: BS EN 420:2003+A1:2009 – Title: Protective gloves. General requirements and test methods

Description of sample: Received one (1) sample of Safegloves for testing which was identified as:
Brand: THERACOM
Product Description: Disposable Gloves

Date Received of Complete Application: 30 July 2020

Job No.: J20201400855

Description of Test Results: This test report covers only test clauses as requested by Applicant to SIRM QAS International Sdn. Bhd. The test results for the submitted test sample as described in this test report complied with the requirement of the above reference standard at the respective clauses tested

Issued Date: 28 September 2020

Approved Signatory:

(MUHAMMAD RIZAL BIN ABDUL) (HAHNAS BINTI MAHBUT)
Senior Testing Executive Head
Chemical & Consumer Section
Testing Services Department

REPORT NO.: 2020CE1264 PAGE: 2 OF 4

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Test Results:

Product: Safegloves
Brand: THERACOM
Product Description: Disposable Gloves

No.	Type of Tests	Requirements BS EN 420:2003+A1:2009 Clause 4 - General Requirements	Results	Level of Performance
1.	Glove Design and Construction - General (BS EN 420:2003+A1:2009 Clause 4.1)	The protective glove shall be designed and manufactured so that in the foreseeable conditions of use for which it is intended, the user can perform related activity normally whilst enjoying appropriate protection at the highest level	The protective glove was designed and manufactured so that in the foreseeable conditions of use for which it is intended, the user can perform related activity normally whilst enjoying appropriate protection at the highest level	Pass
		When the glove construction include seams, the material and strength of the seams shall be such that the overall performance of the glove is not significantly decreased.	The material strength for overall performance of the glove was not significantly decreased (Measured Material Strength: 13.8 MPa)	Pass
2.	Resistance of glove materials to water penetration (BS EN 420:2003+A1:2009 Clause 4.2)	For leather gloves: Time penetration: Level 1 : 30 mins Level 2 : 60 mins Level 3 : 120 mins Level 4 : 180 mins For textile materials: To be reported based on method in EN 20811	Not Applicable	X

Note:
0 : Indicates that the glove falls below the minimum performance level for the given individual hazard
X : Indicates that the glove has not been submitted to the test or the test method appears not to be suitable for the glove design or material

REPORT NO.: 2020CE1264 PAGE: 3 OF 4

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Test Results:

Product: Safegloves
Brand: THERACOM
Product Description: Disposable Gloves

No.	Type of Tests	Requirements BS EN 420:2003+A1:2009 Clause 4 - General Requirements	Results	Level of Performance
3.	Innocuousness of protective gloves (BS EN 420:2003+A1:2009 Clause 4.3)			
3.1	Determination of pH value (BS EN 420:2003+A1:2009 Clause 4.3.2 & EN 1413)	3.5 to 9.5	7.6	Pass
3.2	Determination of Chromium VI content (BS EN 420:2003+A1:2009 Clause 4.3.3 & EN 1413)	Leather type: ≤ 3.0 mg/kg	Not Applicable (Not leather type)	X
3.3	Determination of extractable protein content ⁽¹⁾ (BS EN 420:2003+A1:2009 Clause 4.3.4)	-	27 µg/g	X
4.	Cleaning (BS EN 420:2003+A1:2009 Clause 4.4)	Subject to Care Instructions provided	Not Applicable (Disposable Type)	X

Note:
0 : Indicates that the glove falls below the minimum performance level for the given individual hazard
X : Indicates that the glove has not been submitted to the test or the test method appears not to be suitable for the glove design or material

⁽¹⁾ Extractable Protein Content Test was subcontracted to Global Testing and Consultancy for Rubber (G-TACR), Sungai Buloh, Selangor

Certifications



CE MARK 455-1

(MADE IN COMPLIANCE WITH 93/42/EEC)

(EN455-1)

CERTIFICATIONS

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 Fax: 03-55449609
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TEST REPORT
 REPORT NO : 2020CE1000 PAGE : 1 OF 2

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Applicant : XFIRE (M) SDN. BHD.,
 No. 26, Jalan Sungai Jeluh 32/192,
 Kawasan Perindustrian Kemuning, Seksyen 32,
 42450 Shah Alam, Selangor Darul Ehsan, Malaysia

Manufacturer : Not Stated

Product : Safegloves

Reference Standard / Method of Test : BS EN 455-1:2000 - Title: Medical gloves for single use - Requirements and testing for freedom from holes

Description of sample : Received one (1) sample of Safegloves for testing which was identified as:
 Brand: THERACOM
 Product Description: Disposable Gloves

Date Received of Complete Application : 30 July 2020

Job No. : J20201400857

Description of Test Results : This test report covers only test clauses as requested by Applicant to SIRIM QAS International Sdn. Bhd. The test results for the submitted test sample as described in this test report complied with the requirement of the above reference standard at the respective clauses tested

Issued Date : 18 August 2020

Approved Signatory:

(MUHAMMAD RIZAL BIN ABDULLAH)
 Senior Testing Executive

(HAHNAS BINTI MAHBUT)
 Head
 Chemical & Consumer Section
 Testing Services Department

REPORT NO : 2020CE1000 PAGE : 2 OF 2

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Test Results:

Product : Safegloves
Brand : THERACOM
Product Description : Disposable Gloves

No.	Type of Test	Requirement BS EN 455-1:2000 Clause 4	Result	Remark
1.	Watertightness test for detection of holes (EN 455-1:2000 Clause 5) Test Conditions: Volume of Water : 1000 ml Water Temperature : 15 to 35°C Duration : 3 minutes	Medical gloves for single use shall not leak when tested in accordance with EN 455-1 Clause 5	Visual Inspection: No water leakage observed	Pass

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 - Informing and placing a notice in the media;
 - Obtaining an injunction from Court (cost on a solicitor-client basis to be borne by the Applicant);
 - Refusing to accept any further Product for Testing Services from the Applicant or whosoever related to the Applicant, whether subsidiary or otherwise;
 - Instructing the Applicant to withdraw and recall the advertisement, statement or document in question and advertise a clarification and apology to SIRIM QAS International, SIRIM and/or other SIRIM's subsidiaries twice in a national publication of SIRIM QAS International's choice at the Applicant's sole cost; and
 - Informing or lodging a report pertaining the Applicant's Test Report with the relevant authorities.
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 - Changes in details of the Manufacturer's name and/or address;
 - Changes in details of the Factory location name and/or address;
 - Changes in details of the model and/or type designation.
- However, issuance of Supplementary Report due to the following reasons are FOC:
 - Misprints and typo errors;
 - Missing technical information as agreed in PP1 form;
 - Test data not reported;
 - Mistake in reporting of test data.
- Corrections to report shall only be allowed if the date of issuance of the original report has not exceeded 6 months and shall be limited to maximum 3 times, after either case whichever occurs earlier, an Amendment or a Supplementary Report shall not be issued.

SIRIM QAS International Sdn. Bhd.
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 40700 Shah Alam, Selangor Darul Ehsan, Malaysia
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 Fax: 03-55446089
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TEST REPORT
 REPORT NO.: 2020CE1000 PAGE: 1 OF 2

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Applicant : XFYRE (M) SDN. BHD.
 No. 26, Jalan Sungai Jeluh 32/192,
 Kawasan Perindustrian Kemuning, Seksyen 32,
 42460 Shah Alam, Selangor Darul Ehsan, Malaysia

Manufacturer : Not Stated
 Product : Safegloves
 Reference Standard / Method of Test : BS EN 455-1:2000 - Title: Medical gloves for single use - Requirements and testing for freedom from holes
 Description of sample : Received one (1) sample of Safegloves for testing which was identified as:
 Brand: THERACOM
 Product Description: Disposable Gloves

Date Received of Complete Application : 30 July 2020
 Job No. : J20201400857
 Description of Test Results : This test report covers only test clauses as requested by Applicant to SIRIM QAS International Sdn. Bhd. The test results for the submitted test sample as described in this test report complied with the requirement of the above reference standard at the respective clauses tested
 Issued Date : 18 August 2020

Approved Signatory:

 (MUHAMMAD RIZAL BIN ABDUL RAZAK)
 Senior Testing Executive


 (HAHNAS BINTI MAHBUT)
 Head
 Chemical & Consumer Section
 Testing Services Department



CE MARK 455-2
 (MADE IN COMPLIANCE WITH 93/42/EEC)
 (EN455-1)

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REPORT NO.: 2020CE1079 PAGE: 2 OF 2

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Test Results:

Product : Safegloves
 Brand : THERACOM
 Product Description : Disposable Gloves

No.	Type of Tests	Requirements BS EN 455-2:2015	Results	Remarks
1.	Dimensions (EN 455-2:2015 Clause 4)	Table 2: Dimensions of examination/procedure gloves		
1.1	Length	Size Medium (M) : ≥ 240 mm	M : 240mm	Pass
1.2	Width	Size Medium (M) : 95±10 mm	M : 90mm	Pass
2.	Strength (EN 455-2:2015 Clause 5)	Table 3: Examination/procedure gloves		
		Requirements for all examination gloves except gloves made from thermoplastic materials (e.g. polyvinylchloride, polyethylene)	Requirements for gloves made from thermoplastic materials (e.g. polyvinylchloride, polyethylene)	
2.1	Force at Break	≥ 6.0 N	≥ 3.6 N	7.3 Pass
2.2	Force at Break after challenge testing Test Conditions: Temperature : 70±2°C Duration : 7 days	≥ 6.0 N	≥ 3.6 N	8.1 Pass



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- If the Test Report is to be furnished to any third party or to the public, each such Test Report shall be furnished in full, legible and in its entirety.
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 - Informing and placing a notice in the media;
 - Obtaining an injunction from Court (cost on a solicitor-client basis to be borne by the Applicant);
 - Refusing to accept any further Product for Testing Services from the Applicant or whoever related to the Applicant, whether subsidiary or otherwise;
 - Instructing the Applicant to withdraw and recall the advertisement, statement or document in question and advertise a clarification and apology to SIRIM QAS International, SIRIM and/or other SIRIM's subsidiaries twice in a national publication of SIRIM QAS International's choice at the Applicant's sole cost; and
 - Informing or lodging a report pertaining the Applicant's Test Report with the relevant authorities.
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- However, issuance of Supplementary Report due to the following reasons are FOC:
 - Misprints and typo errors;
 - Missing technical information as agreed in PPI form;
 - Test data not reported;
 - Mistake in reporting of test data
- Corrections to report shall only be allowed if the date of issuance of the original report has not exceeded 6 months and shall be limited to maximum 3 times, after either case whichever occurs earlier, an Amendment or a Supplementary Report shall not be issued.

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CE MARK 455-3 (CYTOTOXICITY)
(MADE IN COMPLIANCE WITH 93/42/EEC)

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INDUSTRIAL BIOTECHNOLOGY RESEARCH CENTRE
Building 19, SIRIM Complex
1, Persiaran Dato' Menteri, Section 2, P. O. Box 7035
40700 Shah Alam, Selangor Darul Ehsan, MALAYSIA
Tel: 603 - 5544 6953 / 6960 Fax: 603 - 5544 6989
Website: www.sirim.my

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TEST REPORT

REPORT NO: R99120/B19/02 PAGE: 1 of 7

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Applicant : Xfrye (M) Sdn. Bhd.
No. 26, Jalan Sungai Jeluh 32/192,
Kawasan Perindustrian Kemuning,
Selkayen 32,
42460 Shah Alam

Manufacturer / Company : Same as above

Test Facility : Industrial Biotechnology Research Centre (IBRC),
Building 19, SIRIM Berhad.

Sample Name / Trade Name : THERACOM - SAFEGLOVES

Reference Standard / Method of Test : ISO 10993-5: 2009. Biological evaluation of medical devices,
Part 5: Tests for in vitro cytotoxicity.

Description of Sample : Received one sample in good condition consisting of 20 pieces for testing with the following identification:
1. Sample Marking: NITRILE DISPOSABLE GLOVES
2. Physical appearance: Glove
3. Colour: Blue
4. Storage: Ambient

Date Received : 02 September 2020

Job No. : J991/20

Issue Date : 10 SEP 2020

REPORT NO: R79620/B19/02 PAGE: 2 of 7

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APPROVED SIGNATORIES

We, the undersigned, declare that the methods, results and data contained in this report faithfully reflect the procedures used and raw data collected throughout the testing.

10 SEP 2020
Date
(LUANI MAZRIN HUSIN)
Reviewer
Industrial Biotechnology Research Centre

10 SEP 2020
Date
(SYAMIM MD KHALID)
Analyst
Industrial Biotechnology Research Centre

REPORT NO: R79620/B19/02 PAGE: 3 of 7

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1.0 Test timetable

Receipt of test item: 02 September 2020
Maintenance of cell culture: 26 August - 02 September 2020
Preparation of cells: 02 September 2020
Extraction procedure: 02 - 03 September 2020
Treatment: 03 - 04 September 2020
End of test: 04 September 2020

2.0 Test system

2.1 L-929 cells mouse fibroblast (NCTC clone 929 [L cell, L-929, derivative of Strain L] ATCC® CCL-1™)

2.2 Justification for selection of the cell culture
American Type Culture Collection CCL-1, NCTC clone 929 Ancestral Fibroblast Mouse is used to evaluate the cytotoxic effect as recommended by ISO 10993 Part 5.

3.0 Material

Table 1 Information of material used

Materials	Brand name	Reference
Growth Medium	Gibco	61100-061
Eagle's Minimum Essential Medium (EMEM)	Gibco	10270-098
Foetal Bovine Serum	Gibco	10270-098
Penicillin Streptomycin (Antibiotic)	Sigma	P4333

4.0 Control item

4.1 Negative control: Polypropylene, Thermo Scientific 339650

4.2 Positive control: Zinc sulphate, Sigma 20251

4.3 Medium control: Eagle's Minimum Essential Medium (EMEM), Gibco 61100-061

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CE MARK 455-3 (ACUTE SYSTEMIC)
(MADE IN COMPLIANCE WITH 93/42/EEC)

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Tel: 603 - 5544 6953 / 6960 Fax: 603 - 5544 6969
Website: www.sirim.my

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TEST REPORT
REPORT NO: R99420/S19/61 PAGE: 1 of 15

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Job No. : J994/20

Applicant : XFYRE Sdn. Bhd.,
No.26, Jalan Sungai Jeluh 32/192,
Kawasan Perindustrian Kemuning,
Seksyen 32,
42460 Shah Alam,
Selangor.

Sample/Trade Name : Theracom-safegloves

Test Name : Acute Systemic Toxicity Study

Reference Standard / Method of Test : ISO 10993-11, Biological evaluation of medical devices - Part 11: Tests for systemic toxicity, Third edition 2017-09. (LWI-239-61)

Receipt of Sample Date : 02 September 2020

Experimental Start Date : 22 October 2020

Experimental End Date : 02 November 2020

Issue Date : 09 November 2020

TEST REPORT
REPORT NO: R99420/S19/61 PAGE: 2 of 15

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APPROVED SIGNATORIES

We, the undersigned, declare that the methods, results and data contained in this report faithfully reflect the procedures used and raw data collected throughout the study.

(SYAMIMI KHALID)
Reviewer
Industrial Biotechnology Research Centre
Date: 09 NOV 2020

(NURHAYATI ARIFFIN)
Analyst
Industrial Biotechnology Research Centre
Date: 09 NOV 2020

ISO 9001 **ISO 14001**

TEST REPORT
REPORT NO: R99420/S19/61 PAGE: 3 of 15

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SUMMARY

EVALUATION OF THERACOM-SAFEGLOVES IN THE ACUTE SYSTEMIC TOXICITY STUDY ON RATS

Acute Systemic Toxicity Study was conducted in accordance with the International Organization for Standardization 10993: Biological Evaluation of Medical Devices, Part 11: Tests for Systemic Toxicity, Third edition 2017-09.

Theracom-safegloves was extracted in 0.9% of sodium chloride solution for polar extraction and cottonseed oil for non-polar extraction at 20 ± 1°C for 72 ± 2 hours. Both test extracts were allowed to cool to room temperature before being injected to the rats.

In acute systemic toxicity study, the extraction of sample was injected into each of five rats by intravenous (IV) route for sodium chloride solution extract and intraperitoneal (IP) route for cottonseed oil extract. Another five rats were also injected with each corresponding blank vehicle.

All animals were observed individually for mortality, signs of gross toxicity and behavioral changes once during the first 30 minutes after dosing. Special attention was given during the first 4 hours and periodically during 72 hours post-dosing. Study weights were recorded prior to injection and daily until termination day. Necropsies were performed on all animals at terminal sacrifice.

No mortality was observed within the 72 hours procedure. The weight of all animals did not show any abnormalities. All animals gained body weight over the 72 hours observation period. All animals appeared normal and did not demonstrate any abnormal behaviour during the observation period.

Following evaluation criteria, if during the observation period of an acute systemic toxicity test none of the animals treated with the sample shows a significantly greater biological reactivity than animals treated with the vehicle control, the sample meets the requirements of this test. Under the conditions of this study, Theracom-safegloves showed no adverse biological reaction after administration of the sample's extract on the rats during the period of the study. Based on evaluation criteria, Theracom-safegloves meets the requirements of this test.

ISO 9001 **ISO 14001**

Certifications



CE MARK 455-3 (ENDOTOXIN)
(MADE IN COMPLIANCE WITH 93/42/EEC)

CERTIFICATIONS

INDUSTRIAL BIOTECHNOLOGY RESEARCH CENTRE
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40700 Shah Alam, Selangor Darul Ehsan, MALAYSIA
Tel: 603 - 5544 6953 / 6960 Fax: 603 - 5544 6988
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TEST REPORT

REPORT NO: R1036 -01/20/19/91 PAGE: 1 of 2

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Applicant : Orissa
Company : XFYRE (M) SDN. BHD.
Address : No. 26, Jalan Sungai Jelut 32/152,
Kawasan Perindustrian Kemuning, Seksyen 32,
42400 Shah Alam, Selangor Darul Ehsan,
MALAYSIA.
Manufacturer : Not stated
Address : Not stated
Sample : Disposable glove
Reference standard : European Pharmacopoeia 8.0 (EP 2.6.14. Bacterial Endotoxin)
/ Method of Test : Turbidimetric Kinetic Method
Description of sample : Received one (1) sample with the following identification for testing:

No	Sample marking	Brand	Size	Quantity
1.	THERACOM - SAFEGLOVES	Nitrile disposable glove	Not stated	10 pairs

Date received : 11 September, 2020
Date test started : 15 September, 2020
Job No. : J1036-01/20
Issue date : 17 September, 2020

Approved signatories:

(MOHD KHARUL AZWAN AHMAD)
MUJIM QASF
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IRAC SIRI STANDARD

REPORT NO: R1036 -01/20/19/91 PAGE: 2 of 2

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Result :

Endotoxin test was carried out on pooled extracts derived from 10 pairs of gloves of the same batch. Bacterial endotoxin content of the sample is shown below:

Disposable glove

No	Sample marking	Brand	Size	Detected Endotoxin (EU/pair of gloves)	Result
1.	THERACOM - SAFEGLOVES	Nitrile disposable glove	Not stated	6.62	Pass

Notes:

*EU - Endotoxin unit

**Microbiological quality control limits (based on BS EN 455-3:2015, Clause 4.3):

-Endotoxin content shall not exceed the limit of 20 EU per pair of gloves.

IRAC SIRI STANDARD

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 - Instructing the Applicant to withdraw and recall the advertisement, statement or document in question and advertise a clarification and apology to SIRIM Berhad and/or other SIRIM's subsidiaries twice in a national publication of SIRIM Berhad's choice at the Applicant's sole cost; and
 - Informing or lodging a report pertaining the Applicant's Test Report with the relevant authorities.
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 - Missing technical information;
 - Test data not reported;
 - Mistake in reporting of test data.
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(Revision 1.3.2020)

INDUSTRIAL BIOTECHNOLOGY RESEARCH CENTRE
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TEST REPORT
 REPORT NO: R99120/B19/02 PAGE: 1 of 7

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Applicant : Xfyre (M) Sdn. Bhd.
 No. 26, Jalan Sungai Jeluh 32/192,
 Kawasan Perindustrian Kemuning,
 Seksyen 32,
 42400 Shah Alam

Manufacturer / Company : Same as above

Test Facility : Industrial Biotechnology Research Centre (IBRC),
 Building 19, SIRIM Berhad.

Sample Name / Trade Name : THERACOM - SAFEGLOVES

Reference Standard / Method of Test : ISO 10993-5: 2009 Biological evaluation of medical devices,
 Part 5: Tests for in vitro cytotoxicity.

Description of Sample : Received one sample in good condition consisting of 20 pieces for testing with the following identification:
 1. Sample Marking: NITRILE DISPOSABLE GLOVES
 2. Physical appearance: Glove
 3. Colour: Blue
 4. Storage: Ambient

Date Received : 02 September 2020

Job No. : J99120

Issue Date : 10 SEP 2020



CE MARK 455-3 (SKIN IRRITATION)
 (MADE IN COMPLIANCE WITH 93/42/EEC)

CERTIFICATIONS

TEST REPORT
 REPORT NO: R99220/B19/57 PAGE: 2 of 14

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APPROVED SIGNATORIES

We, the undersigned, declare that the methods, results and data contained in this report faithfully reflect the procedures used and raw data collected throughout the study.

(JUANI MAZMIN HUSIN)
 Reviewer
 Industrial Biotechnology Research Centre
 Date: 22 SEP 2020

(SYAMIMI MD KHALID)
 Analyst
 Industrial Biotechnology Research Centre
 Date: 22 SEP 2020

TEST REPORT
 REPORT NO: R99220/B19/57 PAGE: 3 of 14

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SUMMARY

PRIMARY SKIN IRRITATION STUDY OF THERACOM SAFEGLOVES ON RABBITS
 ACCORDING TO ISO 10993-10:2010 AND LW-238-97

The Primary Skin Irritation is conducted in accordance with the International Organization of Standardization: Biological Evaluation of Medical Devices, Part 10: Tests for Irritation and Skin Sensitization.

In primary skin irritation test, test item was applied topically on skin of three healthy rabbits for 24 hours. After 24 hour exposure time, the patches were removed. The test sites were wiped and cleaned with purified water. All animals were observed individually for erythema and oedema at (1 ± 0.1), (24 ± 2), (48 ± 2) and (72 ± 2) hours after the patches had been removed.

There were no irritation reactions observed at the test sites on each animal at any time point of observation. No mortality was observed within the 72 hours procedure. All animals appeared normal and did not demonstrate any abnormal behaviour during the observation period.

Under the conditions of this study, THERACOM SAFEGLOVES is considered as negligible where Primary Irritation Index (P.I.I) was calculated as zero (0.0).

Certifications



CE MARK 455-3 (SKIN SENSITIZATION)
(MADE IN COMPLIANCE WITH 93/42/EEC)

CERTIFICATIONS

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TEST REPORT

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Job No. : J993/20

Applicant : Xlyne (M) Sdn. Bhd.,
No. 28, Jalan Sungai Jeluh 32/192,
Kawasan Perindustrian Kemuning,
Seksyen 32,
42460 Shah Alam,
Selangor.

Sample/Trade Name : Theracom-Safegloves

Reference Standard / Method of Test : 1 International Organization for Standard (ISO) 10993-1, Evaluation and testing within a risk of management process (2010) [LWI-238-60]
2 International Organization for Standard (ISO) 10993-2, Biological Evaluation of Medical Devices - Part 2: Animal Welfare Requirement (2008) [LWI-238-60]
3 International Organization for Standard (ISO) 10993-10, Biological Evaluation of Medical Devices - Part 10: Tests for Irritation and Sensitization (2010) [LWI-238-60]
4 Biological evaluation of medical devices - Part 12: Sample preparation and reference materials. Environmental Health and Safety Monograph Series on Testing and Assessment No. 19 (2015) [LWI-238-60]

Receipt of Sample Date : 02 September 2020

Experimental Start Date : 09 October 2020

Experimental End Date : 19 November 2020

Issue Date : **20 NOV 2020**

STUDY REPORT

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APPROVED SIGNATORIES

We, the undersigned, declare that the methods, results and data contained in this report faithfully reflect the procedures used and raw data collected throughout the study.


LUANI MAZMIN HUSIN
Reviewer
Industrial Biotechnology Research Centre
Date: **20 NOV 2020**


(INOOR RABIHA AIDI)
Analyst
Industrial Biotechnology Research Centre
Date: **20 NOV 2020**

STUDY REPORT

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SUMMARY

SKIN SENSITISATION STUDY (CLOSED-PATCH TEST) OF THERACOM-SAFEGLOVES

A Closed-patch Test (Buehler Test) was conducted to determine the potential of the test item to produce skin sensitisation in guinea pigs. The test was conducted in accordance with the International Organization for Standardization 10993: Biological Evaluation of Medical Devices, Part 10: Tests for Irritation and Sensitization.



In Closed-Patch Test (Buehler Test), ten guinea pigs were patched topically with the test item and five guinea pigs served as negative control group were patched in parallel in an identical way but without the test item. Test item was administered by topical application to the test sites of each animals. The patches were held in place by wrapping the trunk of the animals with a surgical tape and securing with self-adherent wrap.

The patches were removed after (6 ± 0.5) hours of exposure. This procedure was repeated three times per week for three weeks, for a total of nine applications.

Following a (14 ± 1) day rest period after the final induction patch, the animals were topically patched with the appropriate test item on the test animals and the control on the control animals. The patches were removed after (6 ± 0.5) hours of exposure. The dermal patch sites were observed for erythema and edema (24 ± 2) hours and (48 ± 2) hours after patch removal.

Each animal was assessed for a sensitisation response based upon the dermal scores. The test substance is not considered to be a skin sensitizer since none of the test animals exhibited skin reaction scores at the challenge exposure following an induction phase. No reactions were observed in the negative control group.

Under the conditions of this study, **Theracom-Safegloves** did not induce sensitisation in the guinea pigs.

TEST REPORT

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4.4.2 For single-exposure tests, the appearance of each application site at (1 ± 0.1) h, (24 ± 2) h, (48 ± 2) h and (72 ± 2) h was observed following removal of the patches.

Table 1: Scoring system for skin reaction

Reaction	Numerical grading
Erythema and eschar formation	
No erythema	0
Very slightly erythema (barely perceptible)	1
Well-defined erythema	2
Moderate erythema	3
Severe erythema (beet-redness) to eschar formation preventing grading of erythema	4
Oedema formation	
No oedema	0
Very slightly oedema (barely perceptible)	1
Well-defined oedema (edge of area well-defined by definite raising)	2
Moderate oedema (raised approximately 1 mm)	3
Severe oedema (raised more than 1mm and extending beyond exposure area)	4
Maximal possible score for irritation	8
Other adverse change at the injection site shall be recorded and reported	

4.5 Evaluation of test result

After the 72 h grading, all erythema grades and edema grades (24 ± 2) h, (48 ± 2) h and (72 ± 2) h was totaled separately for each test item and negative control for each animal. Primary Irritation Score (PIS) was determined using the equation below:

$$PIS = \frac{(Left\ at\ 24h + Right\ at\ 24h) + (Left\ at\ 48h + Right\ at\ 48h) + (Left\ at\ 72h + Right\ at\ 72h)}{6}$$

To obtain the Primary Irritation Index (PII) for the test item, all the primary irritation scores of the individual animals will be added and divided by the number of animals. The equation is as below:

$$Primary\ Irritation\ Index\ (PII) = \frac{PIS\ Animal\ 1 + PIS\ Animal\ 2 + PIS\ Animal\ 3}{3}$$

The Primary Irritation Index (PII) will be characterised by mean score and response category as given in Table 2. The one giving the highest PII determines the response category.

TEST REPORT

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Mean Score	Response Category
0.0 to 0.4	Negligible
0.5 to 1.9	Slight
2.0 to 4.9	Moderate
5.0 to 8.0	Severe

Table 2: Primary Irritation Index categories in rabbit

5.0 RESULT AND DISCUSSION

5.1 Result

5.1.1 Individual animal identification and body weight is presented in Table 3.

5.1.2 Individual cage side observation is presented in Table 4.

5.1.3 Individual skin irritation erythema score is presented in Table 5.

5.1.4 Individual skin irritation oedema score is presented in Table 6.

5.1.5 Summary of Primary Irritation Index Score for Test Item and Negative Control is presented in Table 7.

5.2 Discussion

5.2.1 There were no significant dermal reactions observed at the sites on the rabbits at the time 1, 24, 48, 72 hour observation periods (Refer to Table 5 and Table 6).

5.2.2 None of the animals in the study showed the abnormal clinical signs during the 1, 24, 48, 72 hour observation periods. (Refer to Table 4).

5.2.3 The sum of erythema and oedema scores for the test item and negative control sites were calculated for only 24, 48, 72 hour observation periods of each rabbit. Total score was divided by 6 (2 observation sites x 3 observation periods) to determine the Primary Irritation Score (P.I.S). (Refer to Table 7).

5.2.4 The Primary Irritation Index (P.I.I.) of test item was determined by dividing the Primary Irritation Score (P.I.S) by total number of animals. (Refer to Table 7).

TEST REPORT

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6.0 CONCLUSION

Under the conditions of this study, THERACOM SAFEGLOVES is considered as negligible where Primary Irritation Index (P.I.I) was calculated as zero (0.0).

7.0 RETENTION OF RECORDS AND TEST ITEM

One report will be forwarded to the Sponsor. The other report, together with all generated raw data is maintained at the Industrial Biotechnology Research Centre Archives.




8.0 REFERENCES

8.1 International Organization for Standard (ISO) 10993-2: Biological Evaluation of Medical Devices – Part 2: Animal Welfare Requirement (2008).

8.2 International Organization for Standard (ISO) 10993-10: Biological Evaluation of Medical Devices – Part 10: Tests for Irritation and Sensitization (2010).

8.3 Biological evaluation of medical devices – Part 12: Sample preparation and reference materials. Environmental Health and Safety Monograph Series on Testing and Assessment No. 19 (2015).

8.4 LW6-238-57: Primary Skin Irritation

TEST REPORT

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Table 3 Animal Identification and Body Weight

Animal No.	Sex	Body Weight (kg)	Skin condition before test item application
1 PSI 040	Female	2.9	No erythema and oedema
2 PSI 041	Male	3.1	No erythema and oedema
3 PSI 043	Male	3.4	No erythema and oedema

Table 4 Individual cage-side observation

Dosing Sequence	Animal No.	Findings	Day of Occurrence
1	PSI 040	Active and healthy	Maintained over the (72 ± 2) hour observation period
2	PSI 041		
3	PSI 043		

STUDY REPORT

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BACKGROUND

The ISO 10993 standard defines skin sensitisation or allergic contact dermatitis as immunologically mediated cutaneous reaction to a substance. In the human, the responses can be characterized by pruritis, erythema, oedema, papules, vesicles, bullae or a combination of these. In other species the reactions can differ and only erythema and oedema can be seen.

Closed-patch Test (Buehler Test) is conducted on guinea pig to detect any possible sensitizing activity of chemical and medical devices. This assay consists of induction and challenge phase, thus covering all stages of hypersensitivity. Erythema and oedema is assessed using the Magnusson and Kilgman grading scale.

The albino guinea pig has been used in skin sensitisation tests and is generally accepted as the most appropriate animal model for human allergic contact dermatitis.



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Table 1.2 Animal Identification for Control Group 13


Table 2.1 The grades of erythema and oedema formation for treatment group in Challenge week 14



Table 2.2 The grades of erythema and oedema formation for control group in Challenge week 15

Table 3.1 Individual cage-side observation for treatment group 16

Table 3.2 Individual cage-side observation for control group 16

Table 4 Magnusson and Kilgman scale 17



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1.0 OBJECTIVE

An assessment is made of the potential of the test item under test to produce skin sensitisation in guinea pigs.

2.0 STUDY TIMETABLE

Receipt of Test Item	02 September 2020
Acclimatization	09 October - 14 October 2020
Test System Preparation	15 October 2020 22 October 2020 29 October 2020
Test Item Preparation	15 October 2020 22 October 2020 29 October 2020
Dermal Application - Induction Phase	15, 17, 19 October 2020 22, 23, 25 October 2020 29, 31 October, 01 November 2020
Dermal Application - Challenge phase	15 November 2020
Observation for Challenge phase	16 - 17 November 2020
Data Analysis	17 - 19 November 2020

3.0 MATERIALS

3.1 Test Item

3.1.1 Test Item: Theracom-Safegloves


3.1.2 Date received: 02 November 2020



3.1.3 Physical appearance: Solid

3.1.4 Sample Marking: Nitrile Disposable Glove

3.1.5 Colour: Blue

3.1.6 Physical Chemical Properties Data: Not provided



STUDY REPORT

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3.1.7 Quantity: 5 pieces

3.1.8 Storage condition: Room Temperature

3.1.9 Solubility: Not provided


3.1.10 Stability: Not provided



3.1.11 Expiration date: Not provided

3.2 Test System

Species	Guinea pig
Strain	Harley albino
Justification of the species	The guinea pig is one of the standard species of skin sensitization study. Guinea pig is selected because there is numerous of background and historical data for sensitization studies (Magnusson and Kilgman, 1970). The guinea pig is believed to be the most sensitive animal model for this type of study.
Source	Unit Sumber Hawan Makmal, Fakulti Perubatan, Universiti Kebangsaan Malaysia.
Number of animals used in the study	7 Females 8 Males
Sex:	Male and Female. Female guinea pigs were nulliparous and non-pregnant.
Body weight range at dosing	331 g to 368 g

3.2.1 This study method and test system was approved by SIRIM Berhad Institutional Animal Care and Use (SIRIM-IACUC) and reviewed by the committee at least annually. IACUC approval no.: SIRIM-IACUC/IRG/B19-001017. Approval letter was maintained in Animal Ethic File (BIO 2384/88).



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5.0 Test method

5.1 Test summary

The degree of cytotoxicity in a mammalian cell culture in response to the test item extracted and diluted in growth medium, Eagle's Minimum Essential Medium (EMEM) was determined. Extraction of THERACOM - SAFEGLIVES with extraction ratio of 0.2 g/mL was carried out at (37±1) °C for 24 hours using cell growth medium as 0.2 g/mL. Positive and negative controls were included in the study to verify the proper functioning of the test system. The test item was tested in triplicates at six concentrations: 100.0% (0.0 cm³/mL), 50.0%, 25.0%, 12.5%, 6.25% and 3.125%. Treatment was carried out at (37±1) °C in a carbon dioxide incubator and assessment carried out after 24-hour incubation.

5.2 Significance and rationale

This method is useful for assessing the cytotoxic potential of new materials and formulations and as part of a quality control program for established medical devices and components. Assessment of cytotoxicity provides useful information in predicting the potential clinical applications in human. Cell culture methods have shown good correlation with animal assays and are frequently more sensitive to cytotoxic agents.

5.3 Test procedure

The procedure was divided into three stages as follows.

5.3.1 Cell culture maintenance

Cells were grown in tissue culture grade flasks and routinely examined to ensure they remain healthy. Cells were seeded into 24-well plate and incubated until attaining confluence or near confluence monolayer growth before the treatment procedure.

5.3.2 Preparation of test item

The test item was extracted in the extraction vehicle to give a final extract concentration of approximately 0.0 cm³/mL, which is considered 100% as total extract. The positive and negative controls included were zinc sulphate and polypropylene, respectively. Growth medium was used as the extraction vehicle. The test item and at (37±1) °C for 24 hours. After completion of extraction period, test item in the extraction vehicle were removed in sterile condition. Then the serial dilution from 100% until 3.125% concentration was performed.

Table 2 Preparation of Test Item

Group	Extraction Ratio	Test item amount	Volume of Extraction Vehicle	Extraction Condition
Test item	6.0 cm ³ /mL	6.0 cm ³	10.0 mL	(37±1) °C for 24 hours
Negative Control	0.2 g/mL	1.855 g	9.275 mL	(37±1) °C for 24 hours
Positive Control	0.0008 g/mL	0.0107 g	13.375 mL	(37±1) °C for 24 hours
Medium Control	-	-	20.0 mL	(37±1) °C for 24 hours



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5.3.3 Effect on cell culture

The extract was tested at six concentrations, in growth media: 100.0% (0.0 cm³/mL), 50.0%, 25.0%, 12.5%, 6.25% and 3.125%. Growth medium from the 24-well plate was replaced with test extracts, in triplicate wells at each concentration. The positive, negative and growth medium controls were included in the study. The plate was incubated for 24 hours at (37±1) °C in a humidified atmosphere of 5% carbon dioxide and 95% air.

5.4 Assessment of result

5.4.1 The condition of test item extraction before and after extraction period was observed.

5.4.2 The condition of cultures in each well, before and after treatment, was examined microscopically and graded. The qualitative morphological grading of cytotoxicity is presented in Table 3.

Table 3 Qualitative cytotoxicity grade

Grade	Reactivity	Conditions of cultures
0	None	Discrete intracytoplasmic granules, no cell lysis, no reduction of cell growth.
1	Slight	Not more than 20% of the cells are round, loosely attached and without intracytoplasmic granules, or show changes in morphology; occasional lysed cells are present; only slight growth inhibition observable.
2	Mild	Not more than 50% of the cells are round, devoid of intracytoplasmic granules, no extensive cell lysis, not more than 50% growth inhibition observable.
3	Moderate	Not more than 70% of the cell layers contain rounded cells or are lysed; cell layers not completely destroyed, but more than 50% growth inhibition observable.
4	Severe	Nearly complete or complete destruction of the cell layers.

6.0 Results

6.1 At the completion of the extraction period the physical of test item appeared unchanged by the extraction procedure. The extracts were not filter prior to being applied to the cell monolayer. The extracts were used immediately after the completion of the extraction period. Condition of extracts is presented in Table 4.



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Table 4 Condition of extracts

Extraction	Conditions of extract	
	Before extraction	After extraction
Test item	Clear	Clear
Medium control	Clear	Clear
Negative control	Clear	Clear
Positive control	Clear	Clear

6.2 Microscopic examination of cultures before and after treatment with test extracts and controls, each in triplicate wells, are presented in Table 5.

Table 5 Conditions of cultures before and after treatment

Test extracts and controls	Conditions of cultures	
	Before treatment	After treatment
Test extract, 100.0 %	Subconfluent monolayer	Nearly complete or complete destruction of the cell layers in all wells
Test extract, 50.0 %	Subconfluent monolayer	Nearly complete or complete destruction of the cell layers in all wells
Test extract, 25.0 %	Subconfluent monolayer	Nearly complete or complete destruction of the cell layers in all wells
Test extract, 12.5 %	Subconfluent monolayer	Nearly complete or complete destruction of the cell layers in all wells
Test extract, 6.25 %	Subconfluent monolayer	More than 70% growth inhibition observable in two wells and not more than 50% growth inhibition observable in one well
Test extract, 3.125 %	Subconfluent monolayer	More than 50% growth inhibition observable in two wells and not more than 20% growth inhibition observable in one well
Medium control	Subconfluent monolayer	No cell lysis and reduction of cell growth in all wells
Negative control	Subconfluent monolayer	No cell lysis and reduction of cell growth in all wells
Positive control	Subconfluent monolayer	Nearly complete or complete destruction of the cell layers in all wells with 200 µg/mL zinc sulphate



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7.0 Analysis and interpretation

Conditions of cultures after treatment (from Table 4), each in triplicate wells, was qualitatively graded according to Table 3 and presented in Table 6.

Table 6 Summary of cytotoxic gradings on cultures

Test extracts and controls	Grade	Reactivity
Test extract, 100.0 %	4-4-4	Severe
Test extract, 50.0 %	4-4-4	Severe
Test extract, 25.0 %	4-4-4	Severe
Test extract, 12.5 %	4-4-4	Severe
Test extract, 6.25 %	3-3-3	Moderate
Test extract, 3.125 %	2-2-1	Mild
Medium control	0-0-0	None
Negative control	0-0-0	None
Positive control	4-4-4	Severe

8.0 Conclusion

The test item THERACOM - SAFEGLIVES exhibited severe cytotoxicity reactivity at 100.0% to 12.5% extract concentrations, moderate cytotoxicity reactivity at 6.25% extract concentrations and mild cytotoxicity reactivity at 3.125% extract concentrations under the conditions of this test.

9.0 Reference

- Biological evaluation of medical devices — Part 5: Tests for in vitro cytotoxicity
- Biological evaluation of medical devices — Part 12: Sample preparation and reference materials
- Laboratory Working Instruction-238-02: Cytotoxicity Test for Medical Devices



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Table 5 Individual Skin Irritation Erythema Score

Animal No.	Application Site	(1 ± 0.1) hour		(24 ± 2) ¹ hour		(48 ± 2) ¹ hour		(72 ± 2) ¹ hour		Primary Irritation Score ²
		Left	Right	Left	Right	Left	Right	Left	Right	
PSI 041	Test Item	0	0	0	0	0	0	0	0	0
	Negative Control	0	0	0	0	0	0	0	0	0
PSI 042	Test Item	0	0	0	0	0	0	0	0	0
	Negative Control	0	0	0	0	0	0	0	0	0
PSI 043	Test Item	0	0	0	0	0	0	0	0	0
	Negative Control	0	0	0	0	0	0	0	0	0

Table 6 Individual Skin Irritation Oedema Score

Animal No.	Application Site	(1 ± 0.1) hour		(24 ± 2) ¹ hour		(48 ± 2) ¹ hour		(72 ± 2) ¹ hour		Primary Irritation Score ²
		Left	Right	Left	Right	Left	Right	Left	Right	
PSI 041	Test Item	0	0	0	0	0	0	0	0	0
	Negative Control	0	0	0	0	0	0	0	0	0
PSI 042	Test Item	0	0	0	0	0	0	0	0	0
	Negative Control	0	0	0	0	0	0	0	0	0
PSI 043	Test Item	0	0	0	0	0	0	0	0	0
	Negative Control	0	0	0	0	0	0	0	0	0

¹ Primary Irritation score was calculated only based on (24±2), (48±2) and (72±2).
² Primary Irritation score was the sum of the test sites or control sites score



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Table 7 Summary of Primary Irritation Index Score for Test Item and Negative Control

Animal No.	Test Item Site		Negative Control Site	
	Erythema	Oedema	Erythema	Oedema
PSI 041	0	0	0	0
PSI 042	0	0	0	0
PSI 043	0	0	0	0
Primary Irritation Score (P.I.S)	0	0	0	0
Total Score	0	0	0	0
Average ¹	0	0	0	0
Primary Irritation Index (PII) ²	0	0	0	0
Response Category ³	Negligible		Negligible	

¹ Average score of erythema + oedema (total score divided to 6 sites)

² Total average¹ divided by three animals

³ Primary Irritation Index (PII) response category



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BACKGROUND

As a medical device, the biocompatibility of the device has to be evaluated by following the harmonized standard ISO 10993-1, Biological evaluation of medical devices - Part 1: Evaluation and testing in which the biological test methods are listed. This study adheres to part 11 of ISO 10993: Tests for Systemic Toxicity, Third edition 2017-09 that assess possible contact hazards from chemicals released from the test item to the body system which may produce systemic toxicity. The Acute Systemic Injection test provides general information on health hazards likely to arise from an acute exposure of a medical device.




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1.0 OBJECTIVE

The objective of this study is to provide information on health hazards likely to arise from a short-term exposure of the sample by the intravenous and intraperitoneal injection. This study is based on the requirement of the International Organization for Standardization 10993: Biological Evaluation of Medical Devices, Part 11: Tests for Systemic Toxicity, Third edition 2017-09.

2.0 STUDY TIMETABLE

Receipt of Sample	02 September 2020
Receipt of animal	12 October 2020
Acclimatization	22 October 2020 – 26 October 2020
Sample Extraction	24 October 2020 – 27 October 2020
Treatment	
a) Treatment Group	27 October 2020
b) Control Group	27 October 2020
Observation	
a) Treatment Group	27 October 2020 – 30 October 2020
b) Control Group	27 October 2020 – 30 October 2020
Necropsy	
a) Treatment Group	30 October 2020
b) Control Group	30 October 2020
Data Analysis	30 October 2020 – 02 November 2020
Test Report	09 November 2020

3.0 MATERIALS


3.1 Sample



3.1.1 Sample: Theracon-safegloves

3.1.2 Sample marking: Nitrile Disposable Gloves

3.1.3 Date received: 02 September 2020

3.1.4 Physical appearance: Solid



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3.1.5 Physical Chemical Properties Data: Not provided

3.1.6 Quantity received: 20 pieces

3.1.7 Storage condition: Ambient

3.1.8 Manufacturing date: Not provided

3.1.9 Expiration date: Not provided

3.2 Reagents

3.2.1 0.9% w/v Sodium chloride


3.2.1.1 Batch Number: P414C092



3.2.2 Cottonseed Oil

3.2.2.1 Lot Number: MKCD7646

3.3 Test System

Species	Rat (<i>Rattus norvegicus</i>)
Strain	Sprague Dawley (SD)
Justification of the species	The Sprague Dawley rat is one of the standard species of acute toxicity studies. Rats are selected because there is numerous of background and historical data.
Supplier	Laboratory Animal and Facility Management Faculty of Pharmacy, University Technology MARA (UTM) Puncak Alam Campus, Selangor.
Number of animals used in the study	10 for treatment group 10 for control group
Sex	Female. Female rats were nulliparous and non-pregnant.
Age of animals at dosing	Young adult rats (9 weeks)
Acclimatization time	5 days



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Table 3 Intravenous injection sequence procedure for control group: 0.9% of sodium chloride solution

Injection Sequence	Animal No.	Injection Date	Short-Term Outcome (4 hours)	Long-Term Outcome (72 Hours)
1	RS311	27 October 2020	O	O
2	RS312		O	O
3	RS313		O	O
4	RS314		O	O
5	RS315		O	O

O – Survival, X – Death

Table 4 Intraperitoneal injection sequence procedure for control group: Cottonseed oil

Injection Sequence	Animal No.	Injection Date	Short-Term Outcome (4 hours)	Long-Term Outcome (72 Hours)
1	RS316	27 October 2020	O	O
2	RS317		O	O
3	RS318		O	O
4	RS319		O	O
5	RS320		O	O

O – Survival, X – Death

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Table 5 Individual cage-side observation

Injection Sequence	Animal No.	Findings	Day of Occurrence
1	RS246	No sign of ill health or overt systemic toxicity were observed. All animals were active and healthy. Animals appeared normal and did not demonstrate any abnormal behaviour.	Maintained over the 72 hours observation period
2	RS247		
3	RS248		
4	RS249		
5	RS250		
6	RS251		
7	RS252		
8	RS253		
9	RS254		
10	RS255		
11	RS311		
12	RS312		
13	RS313		
14	RS314		
15	RS315		
16	RS316		
17	RS317		
18	RS318		
19	RS319		
20	RS320		

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Table 6 Individual body weights

		Weight (g)				
Group	Extract	Animal No.	Day 0	Day 1	Day 2	Day 3
Test Extract	0.9% of sodium chloride solution	RS246	223.3	225.4	226.5	228.2
		RS247	220.5	223.2	225.5	228.0
		RS248	226.8	225.1	226.7	229.7
		RS249	231.8	236.4	238.6	240.3
		RS250	236.0	238.0	240.5	243.6
	Cottonseed oil	RS251	221.6	222.5	224.4	227.8
		RS252	218.3	219.6	221.0	225.2
		RS253	225.6	226.9	229.2	231.1
		RS254	216.5	217.9	220.5	223.4
		RS255	219.6	221.1	225.7	227.0
Control	0.9% of sodium chloride solution	RS311	219.1	220.2	223.5	226.4
		RS312	214.9	215.5	216.7	219.8
		RS313	216.5	217.1	219.2	221.3
		RS314	216.0	219.6	220.7	223.8
		RS315	213.7	213.2	215.6	216.9
	Cottonseed oil	RS316	225.8	224.6	225.8	227.0
		RS317	220.1	222.2	224.1	227.7
		RS318	223.6	225.6	225.9	227.4
		RS319	219.9	224.5	227.2	229.5
		RS320	218.7	220.0	223.1	225.5

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Table 7 Individual gross necropsy observations

Group	Extract	Animal No.	Necropsy Date	Tissue/ Organ	Finding
Test Extract	0.9% of sodium chloride solution	RS246	30 October 2020	All selected organ	No gross abnormalities
		RS247		All selected organ	No gross abnormalities
		RS248		All selected organ	No gross abnormalities
		RS249		All selected organ	No gross abnormalities
		RS250		All selected organ	No gross abnormalities
	Cottonseed oil	RS251		All selected organ	No gross abnormalities
		RS252		All selected organ	No gross abnormalities
		RS253		All selected organ	No gross abnormalities
		RS254		All selected organ	No gross abnormalities
		RS255		All selected organ	No gross abnormalities
Control	0.9% of sodium chloride solution	RS311		All selected organ	No gross abnormalities
		RS312		All selected organ	No gross abnormalities
		RS313		All selected organ	No gross abnormalities
		RS314		All selected organ	No gross abnormalities
		RS315		All selected organ	No gross abnormalities
	Cottonseed oil	RS316		All selected organ	No gross abnormalities
		RS317		All selected organ	No gross abnormalities
		RS318		All selected organ	No gross abnormalities
		RS319		All selected organ	No gross abnormalities
		RS320		All selected organ	No gross abnormalities

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4.0 HOUSING

4.1 Husbandry

Housing	Individual caging
Cage type	Rat Individual Ventilated Cages (IVC)
Bedding	Corn Cob Laboratory bedding
Light	12 hours light / 12 hours dark. From 7 am to 7 pm
Temperature	22 ± 3 °C
Relative humidity	30-70%

4.2 Animal Feed and Water Supply

4.2.1 Food: Altromin Rodent Maintenance Diet, 10mm pellets feed for rats. Animals was given food *ad libitum*. The food is considered not to contain any contaminants that could reasonably be expected to affect the purpose or integrity of the study.

4.2.2 Drinking water from the Reverse Osmosis System was supplied *ad libitum* through 250 mL bottle.

4.2.3 Contaminants reasonably expected in feed or water supply is not believed to have influence on the outcome of the study.

4.3 Bedding

4.3.1 Corn Cob bedding was placed underneath of Individual Ventilated Cages during the study. Corn Cob bedding was placed beneath each cage and changed ones a week.

4.4 Identification

4.4.1 Cage: Each cage was identified by card holding information on the study code, the sex of animals, the dose group, the cage number and the individual animal number.




4.4.2 Animal: Each animal was identified prior to dosing by a label on its tail using a permanent marker. The label was stayed with the animal throughout the study.

5.0 PROCEDURE

5.1 Preparation of Animals

5.1.1 Acclimatization: Each animal was individually caged for a minimum of 5 days to allow for acclimatization. On the day of and prior to dosing, each animal was examined to be in good health condition.

5.1.2 Body weights: Each animal was individually weighed on Day 0, just before administration of the sample (initial weight). The deviation of rat's weight was less than ± 20% of the mean weight.

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5.2 Preparation of Sample

Extraction of sample: The sample was extracted in extraction vehicle to give a final extract concentration of approximately 8 cm³/mL, extraction ratio. The extraction procedure was carried out at 37 ± 1 °C for 72 ± 2 hours. The test extracts were allowed to cool and administered to the animals within 24 hours.

5.2.2 The extraction vehicles:

5.2.2.1 Polar extract: 0.9% of sodium chloride solution

5.2.2.2 Non-polar extract: Cottonseed oil

5.2.3 The untreated 0.9% of sodium chloride solution and cottonseed oil were used as the extraction vehicle represent as control and incubated simultaneously at 37 ± 1 °C for 72 ± 2 hours.

5.3 Route of exposure

5.3.1 Routes of administration: The routes were selected based on recommendation from the guidelines of the International Organization for Standardization 19969: Biological Evaluation of Medical Devices, Part 11: Tests for Systemic Toxicity, Third edition 2017-09.

5.3.2 Intravenous injection: Appropriate for devices with a direct or indirect fluid-path or blood contact environment conducive to chemical leaching. The extract of sample and control in 0.9% of sodium chloride was typically administered directly to the vascular system via lateral tail vein.

5.3.3 Intraperitoneal injection: Appropriate for devices with a fluid-path or peritoneal cavity contact environment conducive to chemical leaching. The extract of sample and control in cottonseed oil was typically administered directly to the peritoneal cavity.

5.4 Preparation of Dosing

5.4.1 Dose level: Dose level was selected based on recommendation from the guidelines of the International Organization for Standardization 19969: Biological Evaluation of Medical Devices, Part 11: Tests for Systemic Toxicity, Third edition 2017-09.

5.4.2 Dose volume:

5.4.2.1 Polar extract: 40 mL/kg of rat body weight




5.4.2.2 Non-polar extract: 20 mL/kg of rat body weight

5.5 Observation

5.5.1 Cage-side observation: The animals was individually observed for mortality and signs of illness, injury or abnormal behaviour, once during the first 30 minutes after dosing, periodically during the first 24 hours (with special attention given during the first 4 hours), and daily thereafter for a total of 72 hours.

5.5.2 Body weight: Each animal was individually weighed on daily basis.

5.5.3 Pathology: All animals were subjected to a necropsy and a macroscopic examination. After examination of the external appearance, the cranial, thoracic and abdominal cavities were opened and the appearance of the organs were observed.

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6.0 RESULT AND DISCUSSION

6.1 Cage-side Observation

Individual cage-side observations are presented in Table 5. All animals survived throughout the 4-days observation period, all animals appeared active and healthy.

6.2 Body Weight

Individual body weights are presented in Table 6. In the end of study, body weight did not loss greater than 10% in all animals.

6.3 Pathology

Individual gross necropsy observation was presented in Table 7. At sacrifice times, gross necropsies showed no abnormalities for any of the animals.

7.0 CONCLUSION

Theracom-safeflowes showed no adverse biological reaction after administration of the sample's extract on the rats during the period of the study. Based on evaluation criteria, Theracom-safeflowes meets the requirements of this test.

8.0 RETENTION OF RECORDS AND SAMPLE

One report will be forwarded to the Sponsor. The other report, together with all generated raw data is maintained at the Industrial Biotechnology Research Centre Archives.

9.0 REFERENCES

9.1 ISO 10993-1:2018, Biological evaluation of medical devices - Part 1: Evaluation and testing Requirements




9.2 ISO 10993-2:2009, Biological evaluation of medical devices - Part 2: Animal welfare Requirements

9.3 ISO 10993-11:2017, Biological evaluation of medical devices - Part 11: Tests for Systemic Toxicity

9.4 ISO 10993-12:2012, Biological evaluation of medical devices - Part 12: Sample preparation and reference materials

9.5 Principles and Methods of Toxicology, 5th Ed (2008), Edited by A Wallace Hayes, CRC Press.

9.6 (LWI-238-61) - Tests for Systemic Toxicity

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Table 1 Intravenous injection sequence procedure for sample group: Extraction in 0.9% of sodium chloride solution

Injection Sequence	Animal No.	Injection Date	Short-Term Outcome (4 hours)	Long-Term Outcome (72 hours)
1	RS246	27 October 2020	O	O
2	RS247		O	O
3	RS248		O	O
4	RS249		O	O
5	RS250		O	O

O – Survival, X – Death

Table 2 Intraperitoneal injection sequence procedure for sample group: Extraction in cottonseed oil

Injection Sequence	Animal No.	Injection Date	Short-Term Outcome (4 hours)	Long-Term Outcome (72 hours)
1	RS251	27 October 2020	O	O
2	RS252		O	O
3	RS253		O	O
4	RS254		O	O
5	RS255		O	O

O – Survival, X – Death

