



**SEAM  
BIOSIS**

**EQUINOX**

**Australian Locally Manufactured  
Theatre Garments**

**Contact Information**

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*Distributed by Equinox Medical*

# Local Medical Garments – Ethical Manufacturing

**Thread Apparel** is a large local supplier of uniforms for healthcare staff in Australia servicing over 12,000 apparel pieces weekly.

With over 18 years of manufacturing experience, the company pivoted factory lines to start producing AAMI Level 2 & 3 Surgical gowns in 2020 for healthcare companies such as Estia Health, Icon Group & Slade Health

Thread Apparel has been one of the early adopters in manufacturing garments from recycled plastic bottles

## Ultrasonic Welding Machines

Thread Apparel have purchased and fitted out 4 factories with the latest in garment production technology using ultrasonic welding machines.

This new technology will allow for improvement in quality and output as well as a reduction in waste and costs.

Equinox / Thread Apparel Ultrasonic Welding Machines



## Production Capacity

- Equinox and partner Thread Apparel are currently the largest and most capable surgical gown maker in Australia, with current production capacity exceeding 7,200 units a week from 4 manufacturing hubs in Melbourne.
- Potential to increase production capacity with their current operation to 100,000-200,000 locally-made gown units per week
- More machines and fabric are in two international factories, which if relocated to Australia, would increase this capacity and reduce cost exponentially.

## Specifications

- Seams welded with Ultrasonic Machines keeping the critical zones impervious to fluids.
- Knitted or Elastic Cuffs
- Velcro on back Neck
- Full enclosed back with 2 straps or 4 straps with tag
- Sizes S, M, L, XL (Australian standard)



## **Risks & Challenges**

- There is an urgent need for Australian PPE production to reduce sovereign risk for any virus protection
- There exists a lack of sustainable recycling of medical PPE which is either incinerated or sent to landfill
- International supply shocks of raw and finished materials are prevalent in the current market

## **Opportunities**

- Garment industry jobs for Australians can be created\*
- World-leading recycling technology can originate from Australia
- Cost of recycled gowns has the potential to be self-sustaining through advance manufacturing and recycling
- Cost-effective means of opening borders and resuming economic activity



**+200 Jobs**

*\*Manufacturing scale up is projected to create 200+ jobs for Australians*

# Local Manufacture Strategy – Job Creation & Sovereign Risk Reduction

In October 2020, Equinox and Thread Apparel agreed to formalise their partnership in a joint venture structure, Equinox One Pty Ltd. Equinox One has established a medical garment brand **SeamBiosis™**

## Our Mission:

- 100% Australian-made medical supplies & garments
- Best practice Australian manufacturing and innovation
- 200+ Job Creation
- 25% recycled medical gowns by 2024
- To assist State Health Organisations achieve 25% recycled medical gowns
- To provide additional manufacturing capacity beyond Victoria by establishing facilities in other states

## Our Objectives:

- To expand and optimise existing garment manufacturing facilities in Australia
- To develop garment recycling technology
- To support & procure locally-manufactured fabric production

## Progress to date in 2020:

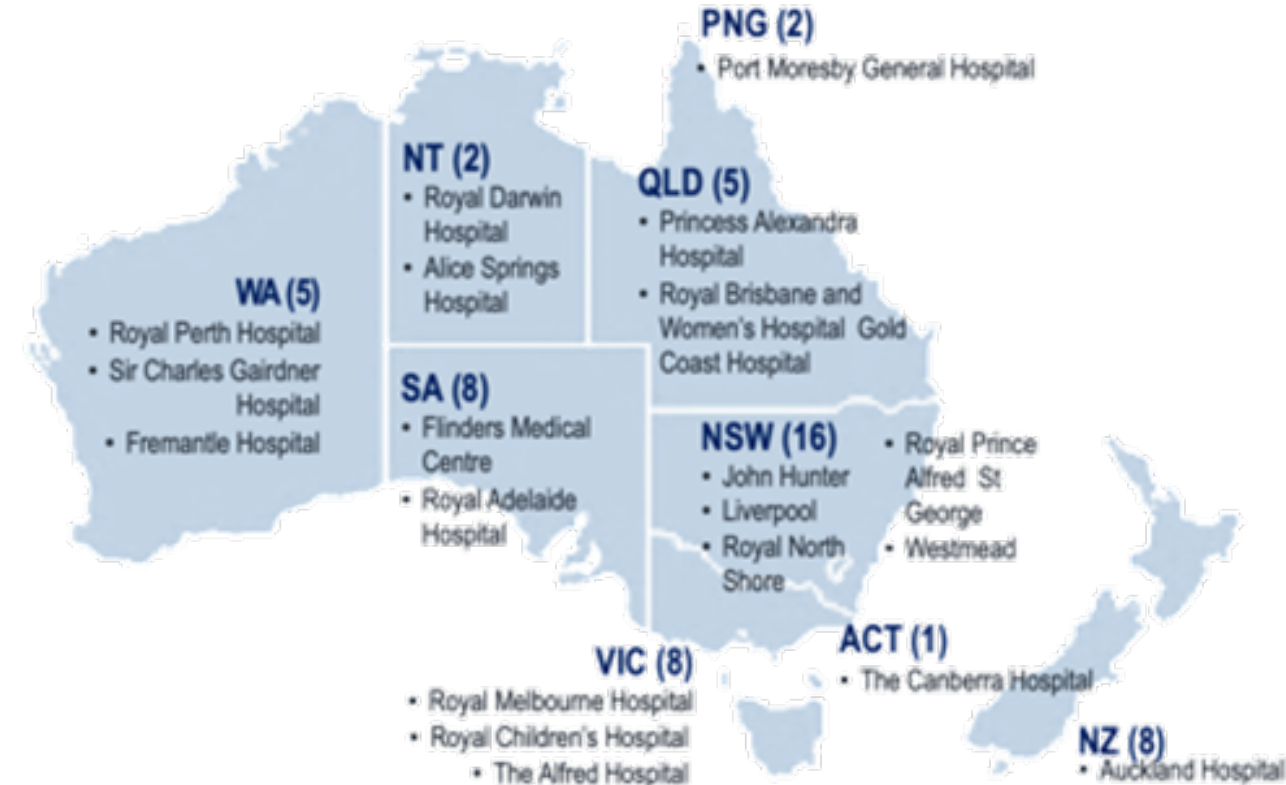
- 40,000 Level 3 surgical gowns sold to Australian healthcare companies
- AAMI accreditation achieved on Level 3 surgical gowns and Level 2 & 3 isolation gowns
- Sterile Level 3 & 4 surgical gowns are being produced for a local order of 25,000 gowns
- Level 4 surgical & isolation gowns soon to be available



- Equinox has an exclusive partnership with EWE, an Australian-based freight forwarding and logistics company
- Existing domestic 3PL network allows for strong negotiations on price and volume discounts from 3rd parties
- Equinox offers a single communication line for product procurement, distribution, freight forwarding, warehousing and site management
- Equinox has a full range of pathology consumables, extraction systems, and PPE. Multiple SKUs facilitates rapid scaling of supply to drive volume-based discounts.

## ***Advantages of an Integrated Supply-Chain Network***

- Reduced Warehouse Requirements
- Real-time inventory and order management
- Transparent product and logistics costs
- End-to-end delivery tracking, from manufactured materials to patients
- Economies of scale for high-volume medical consumables





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## **Products & Specifications**



# Sterile Surgical Gowns – Current Manufacture

## Standard:

Conforms to Level 3 and Level 4 AAMI PB70 and sterile packaging standards AS/NZS 4187:2014.

## Use:

Clothing to be worn by surgeons and other healthcare personnel during surgical situations. The clothing will protect both the patient and the medical staff from transfer of bodily fluids, microorganisms and particulate material whilst exposed.

## Product Sizes:

S / M / L / XL / XXL / XXXL & Extra-Long



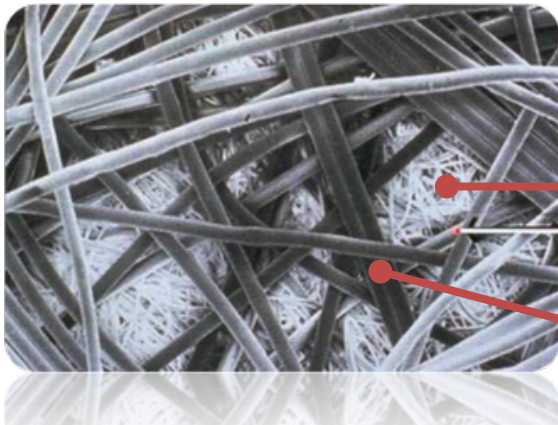
**FRONT:**  
Featuring protective neck binding and ultrasonic seams.



**SIDE:**



**BACK:**  
Featuring closed back with 2 ties and velcro back neck.



Spun-bonded layer: providing enhanced strength

Melt blown layer: providing liquid control and a bacterial barrier



**CUFF:**

Featuring knitted cuff option. Offerings include a range of cuffs - thumb hook, elastic, woven.



# Non-Sterile Isolation Gowns – Imminent Manufactured in early 2021

**Use:** Clothing to be worn by surgeons and other healthcare personnel during patient isolation situations.

Disposable isolation gowns for use by all medical personnel during procedures anticipating contact with bodily fluids, secretions, excretions and other infectious materials.

Where permitted by the Standard for the category and level of gown, designs should optimize:

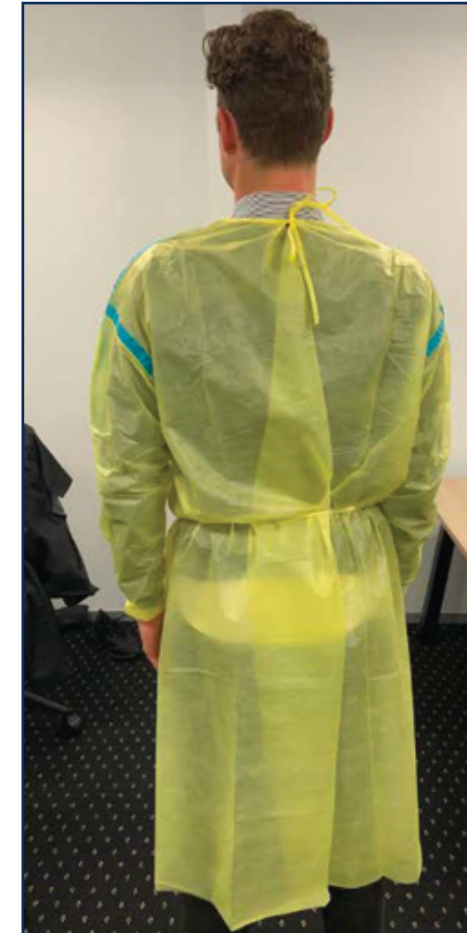
- Ease of donning and doffing
- Comfort

**Standard:** Conforms to Level 3 and Level 4 AAMI PB70.

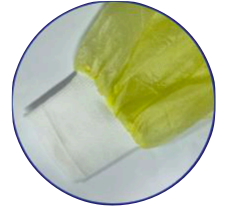
**Design:** Compliant to S.A. Health non-sterile packaging.

## Product Sizes:

S / M / L / XL / XXL / XXXL & Extra-Long



Example of one of our Australian-made  
**Clinical Isolation Gowns**



**KNITWEAR CUFFS:**  
Increased overall protection, sealing. A range of cuffs - thumb hook, elastic, woven.



**KNITWEAR CUFFS:**  
More comfortable to wear. Tie and velcro closures.



**WAISTBAND DESIGN:**  
Adjustable lacing to meet the different needs of dressing.

A grayscale photograph of a surgical team in an operating room, wearing masks and scrubs, focused on a procedure. The image is semi-transparent, serving as a background for the text.

# EQUINOX

**TGA Approval & Test Reports**





## Test Report (Electronic version)

Verification Code: HQYP-1728-44  
Verification Website: www.gttc.net.cn

No: 20R007009

Issue Date: 2020-12-02

Applicant: Thread Apparel  
Address: 1/12 William St, Balaclava 3183 Melbourne, Australia.

Information confirmed by applicant:

Surgical clothing  
Quantity: 40 pieces

Standard Adopted:

ANSI/AAMI PB70:2012 <Liquid barrier performance and classification of protective apparel and drapes intended for use in health care facilities>

Date Received/Date Test Started: 2020-11-24

Conclusion:

Water-proof property [Material/Seam]	M
Static hydrostatic resistance [Material/Seam]	M

Note: "M"-Meet the standard's requirement "F"-Fail to meet the standard's requirement "-"-No comment

Remark:

The decision indicators are derived from the standard required by client ANSI/AAMI PB70:2012. Our inspection capacity authorized by CMA covers the inspection items ANSI/AAMI PB70:2012.

All the tested items are tested under the standard condition (except for indication).

Copies of the report are valid only re-stamped.

The experiment was carried out at No.1, Zhujiang Road, Panyu District, Guangzhou, Guangdong, P.R.China.

Approved By:  
Zi Shan Guo Senior Engineer

Zi Shan Guo



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## Test Report (Electronic version)

No: 20R007009



## Test Report (Electronic version)

No: 20R007009

Water-proof property [Material/Seam]  
Test Method: AATCC 42-2017

Test principle:

A volume of water is allowed to spray against a test surface of a test specimen backed by a weighed blotter. The blotter is then reweighed to determine water penetration and the specimen is classified accordingly.

Test equipment:

Impact penetration testers (TNG68 II TYPE)  
White AATCC Textile Blotting Paper  
Water, distilled, deionized or reverse osmosis  
Balance accurate to 0.1 g

The environmental conditions of the laboratory and test condition:

Pretreatment: the specimens and the blotting paper should be conditioned in an atmosphere of (65±5)% RH and (21±2)°C for 24 h.  
The face side upward  
Temperature of the water: 27.0°C



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**Australian Government**  
**Department of Health**  
 Therapeutic Goods Administration

**Public Summary**

**Summary for ARTG Entry:** 204218 Theodore Hamalis Family Trust Trading as Thread Apparel - Gown, isolation, single use

<b>ARTG entry for:</b>	Medical Device Included Class 1
<b>Sponsor:</b>	Theodore Hamalis Family Trust Trading as Thread Apparel
<b>Postal Address:</b>	1/12 William Street, Ballaclava, VIC, 3183 Australia
<b>ARTG Start Date:</b>	15/04/2020
<b>Product Category:</b>	Medical Device Class 1
<b>Status:</b>	Active
<b>Approval Area:</b>	Medical Devices

**Conditions**

- The inclusion of the kind of device in the ARTG is subject to compliance with all conditions placed or imposed on the ARTG entry. Refer Part 4-5, Division 2 (Conditions) of the Therapeutic Goods Act 1989 and Part 5, Division 5.2 (Conditions) of the Therapeutic Goods (Medical Devices) Regulations 2002 for relevant information.
- Breaching conditions of the inclusion related to the device of the kind may lead to suspension or cancellation of the ARTG entry, may be a criminal offence, and civil penalties may apply.

**Manufacturers**

Name	Address
Theodore Hamalis Family Trust Trading as Thread Apparel	1/12 William Street Ballaclava, VIC, 3183 Australia

**Products**

**1. Gown, isolation, single use**

<b>Product Type:</b>	Single Device Product	<b>Effective Date:</b>	15/04/2020
<b>GMDN:</b>	35482 Gown, isolation, single use		
<b>Intended Purpose:</b>	This is intended to be used as a patient gown for medical use.		

**Specific Conditions**

No Specific Conditions included on Record

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Public Summary



# SGS Test Report – Level 2 Isolation Gowns (1)



Test Report SL52025246336601TX Date: May 06, 2020 Page 1 of 5

DANDONG DEVOTE GARMENT CO., LTD.  
NO.83 TONGKING ROAD, TONGKING TOWN, ZHEN'AN DISTRICT, DANDONG CITY  
The following sample(s) was/were submitted and identified on behalf of the client as:

Sample Description : (A) Disposable non-sterile isolation gown  
Sample Color : (A) blue  
Sample Receiving Date : Apr 30, 2020  
Testing Period : Apr 30, 2020 - May 06, 2020  
Test Result(s) : Unless otherwise stated the results shown in this test report refer only to the sample(s) tested, for further details, please refer to the following page(s).  
Test Performed : Selected test(s) as requested by applicant

Signed for and on behalf of  
SGS-CSTC Standards Technical Services (Shanghai) Co. Ltd.

Sara Guo  
Account Executive

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Test Report SL52025246336601TX Date: May 06, 2020 Page 2 of 5

**Test Result**  
**Liquid Barrier Performance and Classification of Protective apparel and Drapes Intended for Use in Health Care Facilities**  
(ANSI/AAMI PB70:2012)

**Section 4.2.1 Water Resistance: Impact Penetration Test**  
(AATCC 42-2017)  
As received

Weight of blotter gained (g)	1#	2#	3#	4#	5#
Area A (Critical zone-front)	0.0	0.0	0.0	0.0	0.1
Area B (Critical zone-sleeve)	0.0	0.0	0.0	0.0	0.0
Area C (Critical zone-Back)	0.0	0.0	0.0	0.0	0.0

**Remark:**

- Level 1: all critical zone components shall have a blotter weight gain of no more than 4.5grams(g)
- Level 2: all critical zone components shall have a blotter weight gain of no more than 1.0 grams(g)
- Level 3: all critical zone components shall have a blotter weight gain of no more than 1.0 grams(g)

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**Section 4.2.1 Water Resistance: Hydrostatic Pressure Test**  
(AATCC 127-2018; Hydrostatic Head; Rate of increase of water pressure: 60mbar/min; temp. of distilled water: 21°C; fabric face side of water)  
As received

Water Column (cmH <sub>2</sub> O)	1#	2#	3#	4#	5#
Area A (Critical zone-front)	>50.0	>50.0	>50.0	>50.0	>50.0
Area B (Critical zone-sleeve)	24.8	28.4	33.2	31.4	35.0
Area C (Critical zone-Back)	>50.0	>50.0	>50.0	>50.0	>50.0

**Remark:**

- Level 2: all critical zone components shall have a hydrostatic resistance of at least 20cmH<sub>2</sub>O
- Level 3: all critical zone components shall have a hydrostatic resistance of at least 50cmH<sub>2</sub>O

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Barrier performance of each component and final classification commended

	Impact Penetration Test AATCC 42	Hydrostatic Pressure Test AATCC 127	Resistance to Bacteriophage Phi-X174 ASTM F 1671	Level	Final classification
Area A (Critical zone-front)	0.1	>50.0	/	Level 3	Level 2
Area B (Critical zone-sleeve)	0.0	24.8	/	Level 2	
Area C (Critical zone-Back)	0.0	>50.0	/	Level 3	

Remark:

- The barrier performance of all critical zone components, including seams and points of attachments, shall be determined. The classification of isolation gown shall be a number denoting the performance of the critical zone component having the lower barrier performance.
- Level 1: Impact Penetration Test-AATCC 42: ≤4.5g;
- Level 2: Impact Penetration Test-AATCC 42: ≤1.0g; Hydrostatic Pressure Test-AATCC 127: ≥20cmH<sub>2</sub>O;
- Level 3: Impact Penetration Test-AATCC 42: ≤1.0g; Hydrostatic Pressure Test-AATCC 127: ≥50cmH<sub>2</sub>O;
- Level 4: Resistance to Bacteriophage Phi-X174-ASTM F 1671: Pass.

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Sample Photo

\*\*\*End of Report\*\*\*

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Test Report: SL52025246342801TX Date: May 07, 2020 Page 1 of 5

DAIDONG DEVOTE GARMENT CO., LTD  
NO.83 TONGXING ROAD, TONGXING TOWN, ZHENAN DISTRICT, DAIDONG CITY

The following sample(s) was/were submitted and identified on behalf of the client as:

Sample Description: (A) Disposable non-sterile isolation gown

Sample Color: (A) Blue

Sample Receiving Date: May 06, 2020

Testing Period: May 06, 2020 - May 07, 2020

Test Result(s): Unless otherwise stated the results shown in this test report refer only to the sample(s) tested. For further details, please refer to the following page(s).

Test Performed: Selected test(s) as requested by applicant

Signed for and on behalf of:  
SGS-CSTC Standards Technical Services (Shanghai) Co. Ltd

Sara Gao  
Account Executive

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Test Report: SL52025246342801TX Date: May 07, 2020 Page 2 of 5

**Test Result**

**Liquid Barrier Performance and Classification of Protective apparel and Drapes Intended for Use in Health Care Facilities (ANSI/AAMI PB70-2012)**

**Section 4.2.1 Water Resistance: Impact Penetration Test (AATCC 42-2017)**

As received

Weight of blotter gained (g)	1#	2#	3#	4#	5#
Area A (Critical zone-front)	0.0	0.0	0.0	0.0	0.0
Area B (Critical zone-sleeve)	0.0	0.0	0.0	0.0	0.0
Area C (Critical zone-Back)	0.0	0.0	0.0	0.0	0.0
Seam between areas A&B	0.0	0.0	0.0	0.0	0.0
Seam between areas A&C	0.0	0.0	0.0	0.0	0.0
Seam between areas B&C	0.0	0.0	0.0	0.0	0.0

Remark:

- Level 1: all critical zone components shall have a blotter weight gain of no more than 4.5grams(g)
- Level 2: all critical zone components shall have a blotter weight gain of no more than 1.0 grams(g)
- Level 3: all critical zone components shall have a blotter weight gain of no more than 1.0 grams(g)

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**Section 4.2.1 Water Resistance: Hydrostatic Pressure Test (AATCC 127-2018: Hydrostatic Head; Rate of increase of water pressure 60mbarmin; temp. of distilled water: 21°C, fabric face side of water)**

As received

Water Column (cmH <sub>2</sub> O)	1#	2#	3#	4#	5#
Area A (Critical zone-front)	>50.0	>50.0	>50.0	>50.0	>50.0
Area B (Critical zone-sleeve)	>50.0	>50.0	>50.0	>50.0	>50.0
Area C (Critical zone-Back)	>50.0	>50.0	>50.0	>50.0	>50.0
Seam between areas A&B	>50.0	>50.0	>50.0	>50.0	>50.0
Seam between areas A&C	>50.0	>50.0	>50.0	>50.0	>50.0
Seam between areas B&C	>50.0	>50.0	>50.0	>50.0	>50.0

Remark:

- ✓ Level 2: all critical zone components shall have a hydrostatic resistance of at least 20cmH<sub>2</sub>O
- ✓ Level 3: all critical zone components shall have a hydrostatic resistance of at least 50cmH<sub>2</sub>O

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Barrier performance of each component and final classification commended

	Impact Penetration Test AATCC 42	Hydrostatic Pressure Test AATCC 127	Resistance to Bacteriophage Phi-X174 ASTM F 1671	Level	Final classification
Area A (Critical zone-front)	0.0	>50.0	/	Level 3	Level 3
Area B (Critical zone-sleeve)	0.0	>50.0	/	Level 3	
Area C (Critical zone-back)	0.0	>50.0	/	Level 3	
Seam between areas A&B	0.0	>50.0	/	Level 3	
Seam between areas A&C	0.0	>50.0	/	Level 3	
Seam between areas B&C	0.0	>50.0	/	Level 3	

**Remark:**

- ✓ The barrier performance of all critical zone components, including seams and points of attachments, shall be determined. The classification of isolation gown shall be a number denoting the performance of the critical zone component having the lower barrier performance.
- ✓ Level 1: Impact Penetration Test-AATCC 42: ≤4.5g.
- ✓ Level 2: Impact Penetration Test-AATCC 42: ≤1.0g; Hydrostatic Pressure Test-AATCC 127: ≥20cmH<sub>2</sub>O.
- ✓ Level 3: Impact Penetration Test-AATCC 42: ≤1.0g; Hydrostatic Pressure Test-AATCC 127: ≥50cmH<sub>2</sub>O.
- ✓ Level 4: Resistance to Bacteriophage Phi-X174-ASTM F 1671: Pass.

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Barrier performance of each component and final classification commended

	Impact Penetration Test AATCC 42	Hydrostatic Pressure Test AATCC 127	Resistance to Bacteriophage Phi-X174 ASTM F 1671	Level	Final classification
Area A (Critical zone-front)	0.0	>50.0	/	Level 3	Level 3
Area B (Critical zone-sleeve)	0.0	>50.0	/	Level 3	
Area C (Critical zone-back)	0.0	>50.0	/	Level 3	
Seam between areas A&B	0.0	>50.0	/	Level 3	
Seam between areas A&C	0.0	>50.0	/	Level 3	
Seam between areas B&C	0.0	>50.0	/	Level 3	

**Remark:**

- ✓ The barrier performance of all critical zone components, including seams and points of attachments, shall be determined. The classification of isolation gown shall be a number denoting the performance of the critical zone component having the lower barrier performance.
- ✓ Level 1: Impact Penetration Test-AATCC 42: ≤4.5g.
- ✓ Level 2: Impact Penetration Test-AATCC 42: ≤1.0g; Hydrostatic Pressure Test-AATCC 127: ≥20cmH<sub>2</sub>O.
- ✓ Level 3: Impact Penetration Test-AATCC 42: ≤1.0g; Hydrostatic Pressure Test-AATCC 127: ≥50cmH<sub>2</sub>O.
- ✓ Level 4: Resistance to Bacteriophage Phi-X174-ASTM F 1671: Pass.

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