



Solutions Catalog

# LIFE SCIENCES

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Ansell

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Protecting workers  
in all of their  
activities, no matter  
where they are or  
which industry they  
work in. That is  
what we do!

**TO OUR VALUED CUSTOMERS**

Every day workers within the Life Sciences industry around the world use protective solutions for personal protection, or to protect their vital research and the essential products they are manufacturing.

They place their safety and the integrity of their products in our hands, as they rely on Ansell’s quality products to provide the personal and product protection they need.

With over 125 years of experience, we take our customers’ trust very seriously. With dedicated Research, Development, Quality and Regulatory Departments, and through the use of advanced technologies and extensive testing, we work tirelessly to ensure that our solutions are meeting the most stringent standards and regulations. Our commitment to safety, and our quality and differentiated solutions is driving our leading global position in hand, arm and body protection enabling us to become the preferred supplier in North America, Canada and beyond.

In this brand-new catalog, we proudly present our full portfolio of Life Sciences protection solutions for hand, arm, body and face, including several newcomers – one offering true clean and sterile cut resistance. Our portfolio around our key brands BioClean™, MICROFLEX® and TouchNTuff® offer site-wide solutions to meet customer needs when facing contamination risks and chemical hazards within cleanrooms, controlled environments and laboratory environments.

In addition to this comprehensive product overview, our sales and customer service teams will be delighted to provide expert know-how and advice, explaining how our solutions support to improve your organizations’ safety, productivity and cost performance in the best possible way. AnsellGUARDIAN®, our proprietary service, can help you select the right protective equipment solution to improve overall business performance. Please contact us to arrange an assessment to evaluate your needs.

Enjoy your journey through our world of protection!

Kind regards,



**Renae Leary**  
Chief Commercial Officer Americas

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CLEAN & NON-STERILE ISOLATOR & RABS GLOVES

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HAND AND ARM PROTECTION

- Know your gloves & sleeves
- Find the right glove size
- Clean & Sterile Solutions
- Clean & Non-Sterile Solutions
- Isolator & RABS Gloves



KNOW YOUR GLOVES AND SLEEVES





To ensure optimum performance in a given application, each Ansell protective solution is designed with unique characteristics. A wide range of materials, cuff styles and sizes ensure that you get the right glove and/or sleeve for the job. Here, you can quickly familiarize yourself with these characteristics in order to make the best PPE decisions.

Performance Overview by Polymer

	Comfort	Performance	Protection	Comments
Natural Rubber Latex	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<ul style="list-style-type: none"><li>Highest comfort with elasticity &amp; dexterity</li><li>Great wet and dry grip</li><li>Allergenic; type I &amp; type IV</li></ul>
Nitrile	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<ul style="list-style-type: none"><li>Strong and durable material</li><li>Excellent puncture and abrasion resistance</li><li>Good chemical splash resistance</li></ul>
Neoprene	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<ul style="list-style-type: none"><li>Broad chemical splash resistance</li><li>Maintains flexibility across a wide range of temperatures</li><li>Consistent performance even in wet environments</li></ul>
Polyisoprene	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<ul style="list-style-type: none"><li>As comfortable as natural rubber latex</li><li>Second skin fit and feel</li><li>Reduces the risk of type I and type IV allergies</li></ul>
Vinyl	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<ul style="list-style-type: none"><li>Most economical</li><li>Provides lowest level of protection and performance</li></ul>

Very High  High  Moderate  Low  Extremely Low

Glove Cuff Style

Cuff	Description	
	Beaded	Provides increased protection from liquid droplets, as well as increased cuff strength.
	Straight	Provides additional length to protect forearm from liquid run-off.
	Gauntlet	Provides added protection and length (usually 10 cm or longer), allowing maximum movement of the wrist.
	Knitwrist	Designed to hold gloves in place and prevent debris from entering the glove.

Product Segmentation

	Category	Features	Characteristics
	CLEAN & STERILE	Clean and Sterile gloves designed to meet the special requirements of cleanroom and aseptic controlled environments.	<div>Aseptic environment</div> <div>ISO 4, 5 or 6 compliant</div> <div>Highly comfortable</div> <div>Very good chemical protection</div>
	CLEAN & NON-STERILE	Gloves processed and packed within a cleanroom for use within clean controlled environments.	<div>ISO 4, 5 or 6 compliant</div> <div>Broad range of materials</div> <div>Chemical splash protection</div>
	ISOLATOR & RABS GLOVES	Clean and clean/sterile isolator pharmaceutical-grade gloves are cleanroom processed and packed to meet the most stringent requirements.	<div>Strong and durable</div> <div>ISO Class 4 &amp; EU GMP Grade A compliant</div> <div>Excellent chemical protection</div> <div>Superior dexterity and user comfort</div>

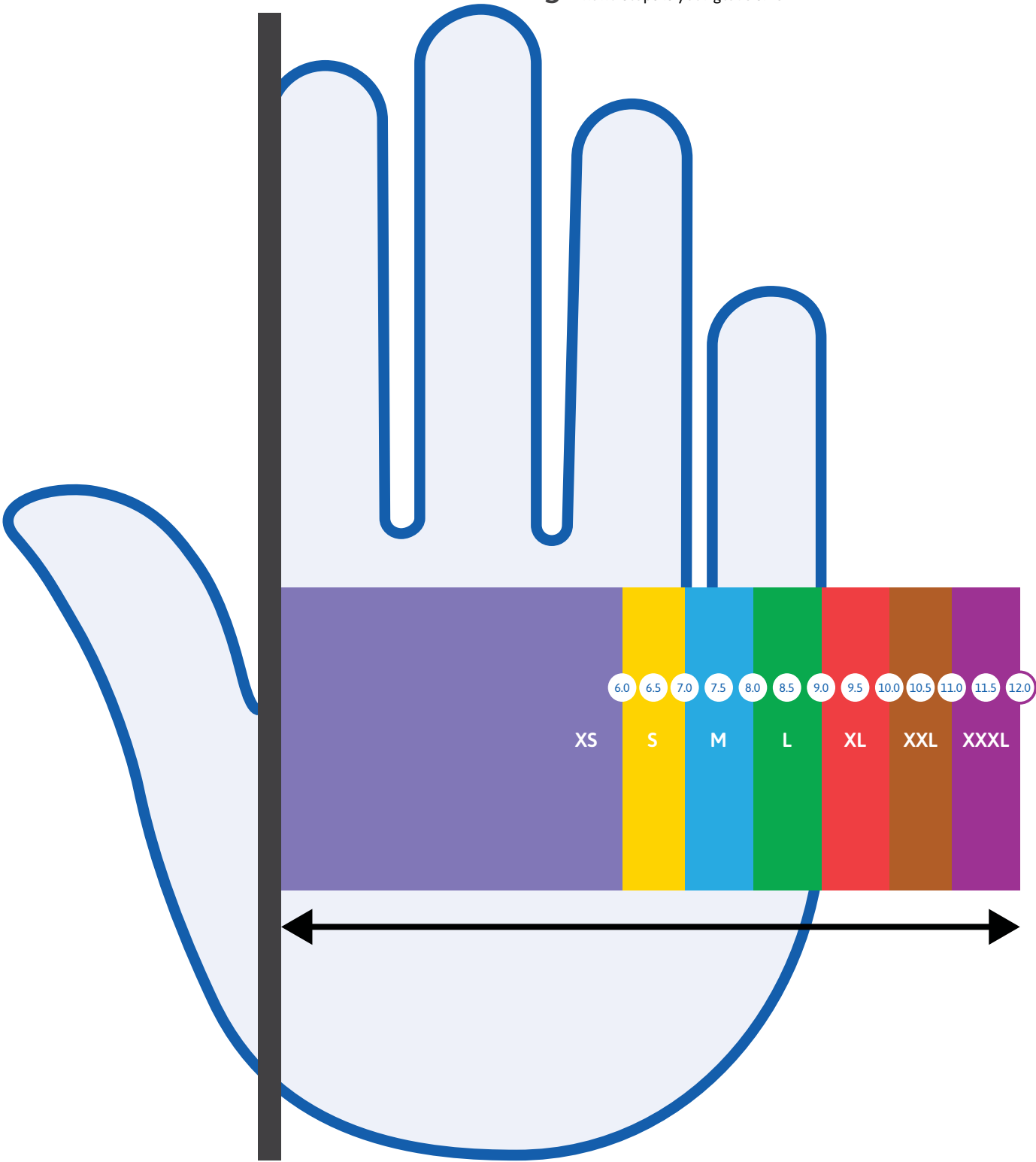
FIND THE RIGHT GLOVE SIZE

Glove Size Chart

Your glove size is determined by the width of your hand, this chart is a guide only and should be used to determine your approximate glove size.

Instructions

- 1 Place your right hand, palm face down, onto the hand outline with your fingers together and your thumb open away from your hand
- 2 Make sure the edge of your index finger is aligned to the black line
- 3 The colored section where the right hand edge of your hand stops is your glove size







**CLEAN/STERILE**



BioClean™ Excell  
BEXS

Super tactility with a comfortable fit



Material	Nitrile
Grip design	Textured fingertips and palm
Cuff style	Beaded
Size	6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 10.0
Length	300mm/12in
Palm thickness	0.12mm/4.72mil
Finger thickness	0.17mm/6.69mil
Cuff thickness	0.09mm/3.54mil
Shape	Hand specific
Typical particle count	3000
Compatibility	ISO Class 4 & EU GMP Grade A
Packaging	One pair per inner PE wallet; one wallet per sealed EasyTear PE pouch; 10 pouches per sealed outer PE bag; 20 outer bags per lined carton (200 pairs)

KEY FEATURES

- Accelerator-free
- Powder-free & latex-free
- Good ESD properties
- Non-particulating EasyTear packaging

PERFORMANCE RATINGS



BioClean™ Emerald  
BENS

Chemical resistant and accelerator-free to ensure superior protection



Material	Nitrile
Grip design	Textured fingertips and palm
Cuff style	Beaded
Size	6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 10.0
Length	300mm/12in
Palm thickness	0.10mm/3.94mil
Finger thickness	0.13mm/5.12mil
Cuff thickness	0.06mm/2.36mil
Shape	Hand specific
Typical particle count	<1200
Compatibility	ISO Class 4 & EU GMP Grade A
Packaging	One pair per inner PE wallet; one wallet per sealed EasyTear PE pouch; 10 pouches per sealed outer PE bag; 20 outer bags per lined carton (200 pairs)

KEY FEATURES

- Sterility Assurance Level: 10<sup>-6</sup>
- Powder, sulphur & accelerator free
- Textured surface with a smooth feel
- Easy double-donning

PERFORMANCE RATINGS



TouchNTuff®  
93-700

Sterile nitrile disposable glove compatible with Class 100/ISO 5 environments



Material	Nitrile
Grip design	Textured fingertips and palm
Cuff style	Beaded
Size	6.5-7, 7.5-8, 8.5-9, 9.5-10
Length	300mm/12in
Palm thickness	0.13mm/5.1mil
Finger thickness	0.16mm/6.3mil
Cuff thickness	0.08mm/3.1mil
Shape	Ambidextrous
Typical particle count	<1500
Compatibility	ISO Class 5
Packaging	One pair per inner PE wallet; one wallet per sealed EasyTear PE pouch; 10 pouches per sealed outer PE bag; 5 outer bags per master PE bag; 4 master bags per lined carton (200 pairs)

KEY FEATURES

- Compatible with Class 100/ISO 5/ Grade A Cleanroom Environments
- Proprietary Ansell nitrile offers superior chemical splash protection
- Silicone-free for product protection

PERFORMANCE RATINGS



BioClean™ N-Plus  
BNPS

Elbow length for extra protection



Material	Nitrile
Grip design	Textured fingertips and palm
Cuff style	Beaded
Size	6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 10.0
Length	400mm/16in
Palm thickness	0.17mm/6.69mil
Finger thickness	0.20mm/7.87mil
Cuff thickness	0.09mm/3.54mil
Shape	Hand specific
Typical particle count	<3300
Compatibility	ISO Class 4 & EU GMP Grade A
Packaging	One pair per inner PE wallet; one wallet per sealed EasyTear PE pouch; 10 pouches per sealed outer PE bag; 20 outer bags per lined carton (200 pairs)

KEY FEATURES

- Resistant to a range of chemicals
- Elbow length protection
- Powder-free & latex-free
- Non-particulating EasyTear packaging

PERFORMANCE RATINGS



BioClean™ Nitramax  
BNMS

Durable, nitrile glove offering full arm protection



Material	Nitrile
Grip design	Textured fingertips and palm
Cuff style	Beaded
Size	6.5, 7.0, 7.5, 8.0, 8.5, 9.0
Length	600mm/24in
Palm thickness	0.15mm/5.91mil
Finger thickness	0.18mm/7.09mil
Cuff thickness	0.09mm/3.54mil
Shape	Hand specific
Typical particle count	<2600
Compatibility	ISO Class 4 & EU GMP Grade A
Packaging	One pair per inner PE wallet; one wallet per sealed EasyTear PE pouch; 10 pouches per sealed outer PE bag; 10 outer bags per lined carton (100 pairs)

KEY FEATURES

- Resistant to a range of chemicals
- Full arm protection
- Powder-free & latex-free
- Excellent ESD properties

PERFORMANCE RATINGS





TouchNTuff®  
73-500

Neoprene, chemical accelerator-free offering unsurpassed combination of sensitivity & durability for sterile environments



Material	Neoprene (Polychloroprene)
Grip design	Smooth
Cuff style	Beaded with SUREFIT™ Technology
Size	5.5, 6, 6.5, 7, 7.5, 8, 8.5, 9
Length	295mm/11.6in
Palm thickness	0.10-0.15mm/ 5.90-5.91mil
Finger thickness	0.11-0.17mm/ 4.33-6.69mil
Cuff thickness	0.11-0.17mm/ 4.33-6.69mil
Shape	Hand Specific with curved fingers
Typical particle count	<2500
Compatibility	ISO Class 5 & EU GMP Grade A
Packaging	1 pair per inner poly pack; 10 inner poly packs per inner polybag; 5 outer polybags per bag; 4 bags per master bag; 1 master bag of 200 pairs per carton

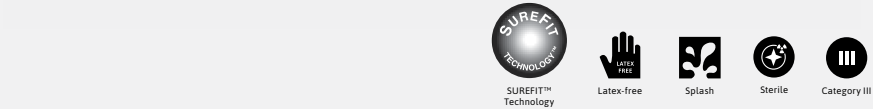
- KEY FEATURES
- Aseptic environment
  - Class 100/ISO 5/Grade A Cleanroom Suitable
  - Thin design for superior tactile sensitivity
  - Enhanced comfort from material design

PERFORMANCE RATINGS



TouchNTuff® DermaShield™  
73-701

Superior protection for clean & sterile environments designed to minimize allergic reactions



Material	Neoprene (Polychloroprene)
Grip design	Textured fingers
Cuff style	Straight with SUREFIT™ Technology
Size	6, 6.5, 7, 7.5, 8, 8.5, 9
Length	295mm/11.6in
Palm thickness	0.18mm/7mil
Finger thickness	0.19mm/8.3mil
Cuff thickness	0.15mm/5.9mil
Shape	Hand Specific with curved fingers
Typical particle count	<2000
Compatibility	ISO Class 5 & EU GMP Grade A
Packaging	1 pair per inner poly pack; 10 inner poly packs per inner polybag; 5 outer polybags per bag; 4 bags per master bag; 1 master bag of 200 pairs per carton

- KEY FEATURES
- Aseptic environment
  - Class 100/ISO 5/Grade A Cleanroom Suitable
  - Avoids type I and IV allergies
  - Greater durability
  - Increased chemical splash protection

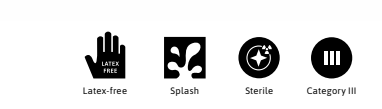
PERFORMANCE RATINGS



BioClean™ P-Zero  
BPZS

Tested for use with chemotherapy drugs

\*See results on page 35



Material	Neoprene (Polychloroprene)
Grip design	Textured fingertips and palm
Cuff style	Beaded
Size	6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0
Length	300mm/12in
Palm thickness	0.15mm/5.91mil
Finger thickness	0.18mm/7.09mil
Cuff thickness	0.11mm/4.33mil
Shape	Hand specific
Typical particle count	<1300
Compatibility	ISO Class 4 & EU GMP Grade A
Packaging	One pair per inner PE wallet; one wallet per sealed EasyTear PE pouch; 10 pouches per sealed outer PE bag; 20 outer bags per lined carton (200 pairs)

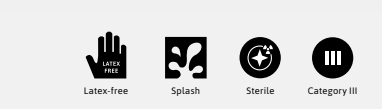
- KEY FEATURES
- Powder-free & latex-free
  - ESD properties
  - Beaded cuff for strength
  - Chemical resistant
  - Non-particulating EasyTear packaging

PERFORMANCE RATINGS



BioClean™ Ultimate  
BUPS

Sterile polychloroprene glove offering cytotoxic protection & enhanced tactility



Material	Neoprene (Polychloroprene)
Grip design	Textured fingertips and palm
Cuff style	Beaded
Size	6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0
Length	300mm/12in
Palm thickness	0.11mm/4.33mil
Finger thickness	0.14mm/5.51mil
Cuff thickness	0.09mm/3.54mil
Shape	Hand specific
Typical particle count	<1300
Compatibility	ISO Class 4 & EU GMP Grade A
Packaging	One pair per inner PE wallet; one wallet per sealed EasyTear PE pouch; 10 pouches per sealed outer PE bag; 20 outer bags per lined carton (200 pairs)

- KEY FEATURES
- Powder-free & latex-free
  - ESD properties
  - Beaded cuff for strength
  - Chemical resistant
  - Double-donnable
  - Non-particulating EasyTear packaging

PERFORMANCE RATINGS



BioClean™ Fusion  
S-BFAP

Ultra-clean, tactile sterile cleanroom glove with proven chemical protection



Material	Neoprene (Polychloroprene)
Grip design	Textured finger
Cuff style	Beaded
Size	5.0-5.5, 6.0-6.5, 7.0-7.5, 8.0-8.5, 9.0, 10.0
Length	300mm/12in
Palm thickness	0.10mm/3.94mil
Finger thickness	0.12mm/4.72mil
Cuff thickness	0.07mm/2.76mil
Shape	Ambidextrous
Typical particle count	850
Compatibility	ISO Class 4 & EU GMP Grade A
Packaging	One pair per inner PE wallet; one wallet per sealed EasyTear PE pouch; 10 pouches per sealed outer PE bag; 20 outer bags per lined carton (200 pairs)

- KEY FEATURES
- Increased tactility
  - Powder-free & latex-free
  - Beaded cuff for strength
  - Non-particulating EasyTear packaging

PERFORMANCE RATINGS



AccuTech®  
91-225

Comfort and outstanding fingertip sensitivity for sterile environments



Material	Natural rubber latex
Grip design	Textured fingertips
Cuff style	Straight
Size	6, 6.5, 7, 7.5, 8, 8.5, 9
Length	285mm/11.2in
Palm thickness	0.23mm/9.1mil
Finger thickness	0.23mm/9.1mil
Cuff thickness	0.25mm/9.8mil
Shape	Hand specific
Typical particle count	<3500
Compatibility	ISO Class 5 & EU GMP Grade A
Packaging	1 pair per inner poly pack; 10 inner poly packs per inner polybag; 5 outer polybags per bag; 4 bags per master bag; 1 master bag of 200 pairs per carton

- KEY FEATURES
- Thick latex glove designed for comfort and dexterity
  - Compatible with Class 100/ISO 5/ Grade A Cleanroom environments
  - Low protein content reduces risk of allergy

PERFORMANCE RATINGS



BioClean™ Advance  
BASL

The ultimate double-donnable glove, when double protection is required



Material	Natural rubber latex
Grip design	Textured fingertips and palm
Cuff style	Beaded
Size	6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 10.0
Length	300mm/12in
Palm thickness	0.17mm/6.69mil
Finger thickness	0.20mm/7.87mil
Cuff thickness	0.11mm/4.33mil
Shape	Hand specific
Typical particle count	<2000
Compatibility	ISO Class 4 & EU GMP Grade A
Packaging	One pair per inner PE wallet; one wallet per sealed EasyTear PE pouch; 10 pouches per sealed outer PE bag; 20 outer bags per lined carton (200 pairs)

- KEY FEATURES
- Flexible & comfortable
  - Powder-free beaded cuff
  - Easy double-donning
  - Non-particulating EasyTear packaging

PERFORMANCE RATINGS



BioClean™ Extra  
BLAS

Unbeatable comfort and elbow length protection



Material	Natural rubber latex
Grip design	Textured fingertips and palm
Cuff style	Beaded
Size	S, M, L, XL
Length	400mm/16in
Palm thickness	0.17mm/6.69mil
Finger thickness	0.21mm/8.27mil
Cuff thickness	0.12mm/4.72mil
Shape	Ambidextrous
Typical particle count	<2400
Compatibility	ISO Class 4 & EU GMP Grade A
Packaging	One pair per inner PE wallet; one wallet per sealed EasyTear PE pouch; 10 pouches per sealed outer PE bag; 20 outer bags per lined carton (200 pairs)

- KEY FEATURES
- Flexible & comfortable
  - Elbow length protection
  - Powder-free
  - Beaded cuff
  - Easy double-donning
  - Non-particulating EasyTear packaging

PERFORMANCE RATINGS



BioClean™ Maxima  
BLLS

Full arm protection within a sterile environment, providing extra coverage and protection to the upper arm



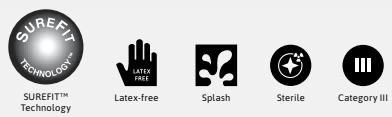
Material	Natural rubber latex
Grip design	Textured fingertips and palm
Cuff style	Beaded
Size	6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 10.0
Length	600mm/24in
Palm thickness	0.18mm/7.09mil
Finger thickness	0.20mm/7.87mil
Cuff thickness	0.12mm/4.72mil
Shape	Hand specific
Typical particle count	<1200
Compatibility	ISO Class 4 & EU GMP Grade A
Packaging	One pair per inner PE wallet; one wallet per sealed EasyTear PE pouch; 10 pouches per sealed outer PE bag; 10 outer bags per lined carton (100 pairs)

- KEY FEATURES
- Flexible & comfortable
  - Shoulder length protection
  - Powder-free beaded cuff
  - Easy double-donning
  - Non-particulating EasyTear packaging

PERFORMANCE RATINGS



TouchNTuff®  
83-500  
Ultra-soft, comfortable protection for sterile environments



Material	Polyisoprene
Grip design	Smooth
Cuff style	Beaded with SUREFIT™ Technology
Size	5.5, 6, 6.5, 7, 7.5, 8, 8.5, 9
Length	295mm/11.6in
Palm thickness	0.17-0.25mm/ 6.69-9.84mil
Finger thickness	0.19-0.27mm/ 7.48-10.63mil
Cuff thickness	0.16mm/6.23mil
Shape	Hand Specific with curved fingers
Typical particle count	<2500
Compatibility	ISO Class 5 & EU GMP Grade A
Packaging	1 pair per inner polybag; 10 pairs per outer polybag; 5 polybags per master polybags; 4 master polybags per carton; 200 pairs per carton

- KEY FEATURES
- Compatible with Class 100/ ISO 5/ Grade A Cleanroom Environments
  - Superior comfort with second skin feel
  - Latex-free polyisoprene performance
  - Reduces the risk of Type I allergies sensitivity



BioClean™ Cut Resistant Liner  
S-BCRL  
A true clean and sterile cut protection layer



Material	Ultra high molecular weight polyethylene
Grip design	Knitted
Cuff style	Knitted
Size	XS, S, M, L, XL
Length	160-200mm/6.30-7.87in (dependent on size)
Shape	Ambidextrous
Typical particle count	<2000
Compatibility	Intended to be worn under a suitable cleanroom glove
Packaging	One pair per inner PE wallet; one wallet per sealed EasyTear PE pouch; 10 pouches per sealed outer PE bag; 10 outer bags per lined carton (100 pairs)



- KEY FEATURES
- EN388 and ANSI Level II cut resistance
  - Optimal dexterity, comfort and fit
  - Recommended to be worn between two cleanroom gloves



# Ansell is the choice for Cut Protection solutions

## The Standards have changed. Here's what you need to know.

New cut resistance standards from American National Standards Institute (ANSI) and International Safety Equipment Association (ISEA) became effective in March 2016.

Change in ANSI/ISEA classification levels for cut resistance

These new standards include changes to the ratings scale and standardization on a methodology for testing cut resistance.

Ansell has developed a range of educational tools to make the standards simpler to understand and easier for customers to integrate into their safety program. In addition, our cut resistant gloves and sleeves\* will be marked per the new performance standards to ensure full compliance with all regulatory requirements for cut protection products.

PRIOR: ISEA 105-2011		NEW: ANSI/ISEA 2016		EUROPE: EN388-2016	
ASTM F1790-2014 (CPPT)*		ASTM F2992-15 (TDM)		ISO 13997 (TDM)	
CPPT or TDM		TDM ONLY		TDM ONLY	
LEVEL	GRAMS	LEVEL	GRAMS	LEVEL	NEWTONS*
1	≥ 200	A1	≥ 200	A	2
2	≥ 500	A2	≥ 500	B	5
3	≥ 1000	A3	≥ 1000	C	10
4	≥ 1500	A4	≥ 1500	D	15
		A5	≥ 2200	E	22
		A6	≥ 3000	F	30
5	≥ 3500	A7	≥ 4000		
		A8	≥ 5000		
		A9	≥ 6000		

\*NOTE: 1 Newton is equal to 102 grams of force. This means the new ANSI cut level in North America will correlate to the EN388 cut level in Canada and Europe.

### Icons & Glove Marks

Ansell products and marketing collateral will now clearly identify 2016 ANSI cut levels with the new graphic icons to the left and glove markings as shown to the right.

For additional information on ANSI and EN Regulations visit [www.ansell.com/regulatory-compliance](http://www.ansell.com/regulatory-compliance).

\*The S-BCRL Cut Resistant Liner is not marked to comply with cleanroom standards





**CLEAN/NON-STERILE**

**MICROFLEX®**  
**93-360**

Thinnest chemical resistant synthetic composite disposable glove for cleanroom environments



Material	Nitrile and Neoprene (Polychloroprene)
Grip design	Textured fingertips
Cuff style	Beaded
Size	5.5-6, 6.5-7, 7.5-8, 8.5-9, 9.5-10, 10.5-11
Length	300mm/11.8in
Palm thickness	0.198mm/7.9mil
Finger thickness	0.20mm/7.9mil
Cuff thickness	0.13mm/5.1mil
Shape	Ambidextrous
Typical particle count	-
Compatibility	ISO Class 5
Packaging	50 gloves per polybag/ 10 polybags per carton/ case

- KEY FEATURES**
- Three layer design for superior protection against harsh chemicals including acids, solvents and bases
  - Thin mil construction provides enhanced tactility and dexterity
  - Easy donning interior provides a dry feel and eases the donning and doffing process
  - Non-particulating packaging designed to reduce contamination

PERFORMANCE RATINGS



**BioClean™ Biotac BIOTAC**

Flexible and comfortable cleanroom glove offering excellent grip and chemical resistance



Material	Nitrile
Grip design	Textured fingers
Cuff style	Beaded
Size	XS, S, M, L, XL, XXL, XXXL
Length	300mm/12in
Palm thickness	0.11mm/4.33mil
Finger thickness	0.17mm/6.69mil
Cuff thickness	0.08mm/3.15mil
Shape	Ambidextrous
Typical particle count	<1500
Compatibility	ISO Class 5
Packaging	100 pieces per sealed inner PE bag; one inner PE bag per sealed outer PE bag; 10 outer bags per lined carton (1000 pieces)

Please note: size XXXL subject to minimum order quantity (MOQ)

- KEY FEATURES**
- Resistant to a range of chemicals
  - Latex & powder-free
  - Non-particulating EasyTear packaging
  - AQL 1.5

PERFORMANCE RATINGS



**BioClean™ Synergy BSAN**

Ultra thin formulation enabling superior tactility for the most intricate tasks



Material	Nitrile
Grip design	Textured fingers and palm
Cuff style	Beaded
Size	XS, S, M, L, XL, XXL
Length	300mm/12mil
Palm thickness	0.10mm/3.94mil
Finger thickness	0.12mm/4.72mil
Cuff thickness	0.06mm/2.36mil
Shape	Ambidextrous
Typical particle count	<1200
Compatibility	ISO Class 4
Packaging	100 pieces per sealed inner PE bag; one inner PE bag per sealed outer PE bag; 10 outer bags per lined carton (1000 pieces)

- KEY FEATURES**
- Resistant to a range of chemicals
  - Powder, sulphur & accelerator free
  - AQL 1.5
  - Easy double-donning
  - Non-particulating EasyTear packaging

PERFORMANCE RATINGS



**TouchNTuff®**  
**93-300**

Clean glove offering comfort and durability



Material	Nitrile
Grip design	Textured fingertips
Cuff style	Beaded
Size	6.5-7, 7.5-8, 8.5-9, 9.5-10
Length	300mm/11.8in
Palm thickness	0.13mm/5.1mil
Finger thickness	0.16mm/6.3mil
Cuff thickness	0.08mm/3.1mil
Shape	Ambidextrous
Typical particle count	1500
Compatibility	ISO Class 5
Packaging	50 gloves per polybag; 2 polybags per master poly bag; 10 master poly bags per lined carton

- KEY FEATURES**
- Compatible with Class 100/ISO 5 cleanroom environments
  - Proprietary Ansell nitrile offers superior chemical splash protection
  - Robust design resists punctures and tears
  - Silicone-free for product protection

PERFORMANCE RATINGS



**Nitrilite™**  
**93-401**

Nitrile glove for ultra-cleanroom environment



Material	Nitrile
Grip design	Textured fingertips
Cuff style	Beaded
Size	5-5.5, 6-6.5, 7-7.5, 8-8.5, 9-9.5, 10-10.5
Length	300mm/11.8in
Palm thickness	0.11mm/4.3mil
Finger thickness	0.13mm/4.9mil
Cuff thickness	0.08mm/3.1mil
Shape	Ambidextrous
Typical particle count	<400
Compatibility	ISO Class 4
Packaging	50 gloves per polybag; 2 polybags per master polybag; 10 master polybags per carton/case; 1000 gloves per carton

- KEY FEATURES**
- Compatible with Class 10/ISO 4 cleanroom environments
  - Very low levels of ionic content and particulate for excellent product protection

PERFORMANCE RATINGS



**Nitrilite™**  
**93-311**

Clean nitrile glove for product protection in life sciences and electronics



Material	Nitrile
Grip design	Textured fingertips
Cuff style	Beaded
Size	5.5-6, 6.5-7, 7.5-8, 8.5-9, 9.5-10
Length	300mm/11.8in
Palm thickness	0.10mm/3.9mil
Finger thickness	0.13mm/4.9mil
Cuff thickness	0.075mm/3.0mil
Shape	Ambidextrous
Typical particle count	<2400
Compatibility	ISO Class 5
Packaging	50 gloves per polybag; 2 poly bags per master polybag; 10 master polybags per carton/case; 1000 gloves per carton

- KEY FEATURES**
- Compatible with Class 100/ISO 5 cleanroom environments
  - Low levels of ionic content for excellent product protection
  - Ideal for a wide range of electrically sensitive applications

PERFORMANCE RATINGS



**BioClean™ Nerva BNAL**

Extra length for extra protection when handling chemicals



Material	Nitrile
Grip design	Textured fingers and palm
Cuff style	Beaded
Size	S, M, L, XL, XXL
Length	400mm/16in
Palm thickness	0.10mm/3.94mil
Finger thickness	0.16mm/6.30mil
Cuff thickness	0.08mm/3.15mil
Shape	Ambidextrous
Typical particle count	<2800
Compatibility	ISO Class 4
Packaging	100 pieces per sealed inner PE bag; one inner PE bag per sealed outer PE bag; 10 outer bags per lined carton (1000 pieces)

- KEY FEATURES**
- Resistant to a range of chemicals
  - Beaded cuff
  - Double-donnable
  - AQL 0.65

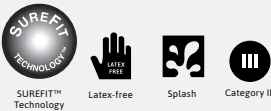
PERFORMANCE RATINGS





TouchNTuff®  
73-300

Neoprene, chemical accelerator-free offering unsurpassed combination of sensitivity and durability for clean environments



Material	Neoprene (Polychloroprene)
Grip design	Smooth
Cuff style	Beaded with SUREFIT™ TECHNOLOGY
Size	5.5, 6, 6.5, 7, 7.5, 8, 8.5, 9
Length	295mm/11.6in
Palm thickness	0.10-0.15mm/ 5.90-5.91mil
Finger thickness	0.11-0.17mm/ 4.33-6.69mil
Cuff thickness	0.11-0.17mm/ 4.33-6.69mil
Shape	Hand specific with curved fingers
Typical particle count	2500
Compatibility	ISO Class 5
Packaging	20 pairs per inner polybag; 1 inner polybag per outer poly bag; 2 outer polybags per bag; 5 bags per master bag; 1 master bag of 200 pairs per carton/case

- KEY FEATURES
- Compatible with Class 100/ISO 5 cleanroom environments
  - Thin design for superior tactile sensitivity
  - Broad chemical splash resistance
  - Prevents Type I and Type IV allergies

PERFORMANCE RATINGS



BioClean™ Fusion  
BFAP

Protects like nitrile, feels like latex



Material	Neoprene (Polychloroprene)
Grip design	Textured fingers
Cuff style	Beaded
Size	XS, S, M, L, XL, XXL
Length	300mm/12in
Palm thickness	0.10mm/3.94mil
Finger thickness	0.12mm/4.72mil
Cuff thickness	0.07mm/2.76mil
Shape	Ambidextrous
Typical particle count	850
Compatibility	ISO Class 4
Packaging	100 pieces per sealed inner PE bag; one inner PE bag per sealed outer PE bag; 10 outer bags per lined carton (1000 pieces)

- KEY FEATURES
- Low particulate count
  - Powder-free & latex-free
  - Excellent ESD properties
  - Easy double-donning
  - AQL 0.65

PERFORMANCE RATINGS



BioClean™ Legacy  
BLA2

Ultimate comfort with easy double-donning



Material	Natural rubber latex
Grip design	Textured fingers and palm
Cuff style	Beaded
Size	XS, S, M, L, XL, XXL
Length	300mm/12in
Palm thickness	0.17mm/6.69mil
Finger thickness	0.20mm/7.87mil
Cuff thickness	0.11mm/4.33mil
Shape	Ambidextrous
Typical particle count	<1500
Compatibility	ISO Class 4
Packaging	100 pieces per sealed inner PE bag; one inner PE bag per sealed outer PE bag; 10 outer bags per lined carton (1000 pieces)

- KEY FEATURES
- Flexible & comfortable
  - Easy double-donning
  - Textured
  - Beaded cuff
  - AQL 0.65

PERFORMANCE RATINGS



BioClean™ Legion  
BLA3

Unbeatable comfort, with elbow length protection



Material	Natural rubber latex
Grip design	Textured fingers and palm
Cuff style	Beaded
Size	S, M, L, XL
Length	400mm/16in
Palm thickness	0.17mm/6.69mil
Finger thickness	0.20mm/7.87mil
Cuff thickness	0.11mm/4.33mil
Shape	Ambidextrous
Typical particle count	<1500
Compatibility	ISO Class 5
Packaging	100 pieces per sealed inner PE bag; one inner PE bag per sealed outer PE bag; 10 outer bags per lined carton (1000 pieces)

- KEY FEATURES
- Flexible and comfortable
  - Elbow length for extra protection
  - Powder-free
  - Easy double-donning
  - AQL 1.5

PERFORMANCE RATINGS



BioClean™ Vector  
BVA-E

Non-sterile Vinyl gloves, the economical alternative to nitrile



Material	Vinyl Polyvinyl Chloride
Grip design	Smooth
Cuff style	Beaded
Size	S, M, L, XL
Length	300mm/12in
Palm thickness	0.09mm/3.54mil
Finger thickness	0.10mm/3.94mil
Cuff thickness	0.06mm/2.36mil
Shape	Ambidextrous
Typical particle count	<3000
Compatibility	ISO Class 5
Packaging	100 pieces per sealed inner PE bag; one inner PE bag per sealed outer PE bag; 10 outer bags per lined carton (1000 pieces)

- KEY FEATURES
- Non-textured
  - Beaded cuff for strength
  - Thin for good tactility
  - AQL 1.5





## ISOLATOR & RABS GLOVES



BioClean™  
GGL  
Validated Sterile Nitrile RABS/Isolator Gloves



Material	Nitrile
Glove design	5 Finger Ambidextrous Size 9.75
Surface	Smooth
Cuff style	Beaded
Length	840mm/33in
Palm thickness	0.45mm/17.72mil
Finger thickness	0.55mm/21.65mil
Re-order code: port size (in/mm)	GGL15NIT59: 6-8/152-203 GGL20NIT59: 8-10/203-254 GGL33NIT59: 10-12/254-305 GGL36NIT59: 12-14/305-356
Compatibility	ISO Class 5 & EU GMP Grade A
Packaging	Triple bagged: One piece per sealed inner PE bag; one inner bag per sealed second inner PE bag; one second inner bag per sealed outer; PE bag; 20 outer bags per lined inner white Correx polyethylene box (20 pieces)

- DESCRIPTION**
- BioClean™ validated sterile RABS and Isolator Gloves are manufactured from nitrile with incredibly low levels of particles and excellent ESD properties
  - Designed for use in product contact areas, our GGL series of gloves are fully validated for sterility with a SAL (Sterility Assurance Level) of 10<sup>-6</sup> and are available in a range of port sizes

- KEY FEATURES**
- Tested against ASTM D6978-05 for handling chemo drugs
  - Ultra-clean surface ensures product protection
  - 100% inspected and air leak tested
  - Suitable for autoclaving
  - Can be sanitized by VHP or IPA

**PERFORMANCE RATINGS**

EN 421: 2010

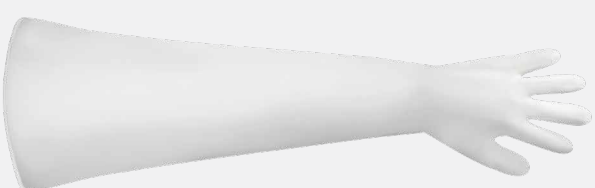
EN ISO 374 Type A

ISO 374-5: 2016

EN 388: 2016

4101X

BioClean™  
GHG  
Validated Sterile Nitrile High Grip RABS/ Isolator Gloves



Material	Nitrile
Glove design	5 Finger Ambidextrous Size 9.75
Surface	Smooth
Cuff style	Beaded
Length	840mm/33in
Palm thickness	0.45mm/17.72mil
Finger thickness	0.55mm/21.65mil
Re-order code: port size (in/mm)	GHG15NIT59: 6-8/152-203 GHG20NIT59: 8-10/203-254 GHG33NIT59: 10-12/254-305 GHG36NIT59: 12-14/305-356
Compatibility	ISO Class 4 & EU GMP Grade A
Packaging	Triple bagged: One piece per sealed inner PE bag; one inner bag per sealed second inner PE bag; one second inner bag per sealed outer PE bag; 20 outer bags per lined inner white Correx polyethylene box (20 pieces)

- DESCRIPTION**
- BioClean™ validated sterile RABS and Isolator Gloves are manufactured from nitrile with incredibly low levels of particles and excellent ESD properties
  - Designed for precision work when increased grip is required, our GHG series of high grip gloves are fully validated for sterility with a SAL (Sterility Assurance Level) of 10<sup>-6</sup> and are available in a range of port sizes

- KEY FEATURES**
- Tested against ASTM D6978-05 for handling chemo drugs
  - Ultra-clean surface ensures product protection
  - 100% inspected and air leak tested
  - Suitable for autoclaving
  - Can be sanitized by VHP or IPA

**PERFORMANCE RATINGS**

EN 421: 2010

EN ISO 374 Type A

ISO 374-5: 2016

EN 388: 2016

4101X

BioClean™  
GSL  
Sterile Nitrile RABS/Isolator Sleeve



Material	Nitrile
Surface	Smooth
Length	660mm/26in
Re-order code: port size (in/mm)	GSL15NITPP26: 6-8/152-203 GSL20NITPP26: 8-10/203-254 GSL33NITPP26: 10-12/254-305 GSL36NITPP26: 12-14/305-356
Compatibility	ISO Class 4 & EU GMP Grade A
Packaging	Triple bagged: One piece per sealed inner PE bag; one inner bag per sealed second inner PE bag; one second inner bag per sealed outer PE bag; 20 outer bags per lined inner white Correx polyethylene box (20 pieces)

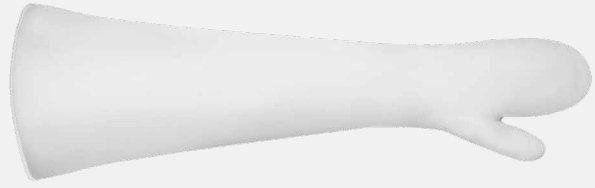
- DESCRIPTION**
- BioClean™ RABS & Isolator Sleeves are manufactured from nitrile with incredibly low levels of particles and excellent ESD properties. Designed for use in product contact areas
  - BioClean™ RABS/Isolator sleeves are fully validated for sterility with a SAL (Sterility Assurance Level) of 10<sup>-6</sup> and have a cuff ring diameter of 90mm/3.5” to fit most available cuff ring systems

- KEY FEATURES**
- Ultra-clean surface ensures product protection
  - 100% inspected and air leak tested (prior to being guillotined)
  - Suitable for autoclaving
  - Can be sanitized by VHP or IPA

PERFORMANCE RATINGS



BioClean™  
GGL30NITM9  
Validated Sterile Nitrile RABS/Isolator Mitten



Material	Nitrile
Glove design	Mitten
Surface	Smooth
Cuff style	Beaded
Length	840mm/33in
Palm thickness	0.45mm/17.72mil
Finger thickness	0.55mm/21.65mil
Port size	10-12in/254-305mm
Compatibility	ISO Class 4 & EU GMP Grade A
Packaging	Triple bagged: One piece per sealed inner PE bag; one inner bag per sealed second inner PE bag; one second inner bag per sealed outer PE bag; 20 outer bags per lined inner white Correx polyethylene box (20 pieces)

- DESCRIPTION**
- BioClean™ validated sterile RABS and Isolator Mittens are manufactured from Nitrile with incredibly low levels of particles and excellent ESD properties
  - Designed for use in product contact areas, our GGL mittens are fully validated for sterility with a SAL (Sterility Assurance Level) of 10<sup>-6</sup>

- KEY FEATURES**
- Tested against ASTM D6978-05 for handling chemo drugs
  - 100% air leak tested
  - Ultra-clean surface ensures product protection
  - Suitable for autoclaving
  - Can be sanitized by VHP or IPA

**PERFORMANCE RATINGS**

EN 421: 2010

EN ISO 374 Type A

ISO 374-5: 2016

EN 388: 2016

4101X

BioClean™  
GSG10NIT80

Validated Sterile Nitrile RABS/Isolator Sleeve/  
Glove System



Material	Nitrile sleeve polychloroprene glove (BPZS)
Glove design	Hand specific glove
Surface	Textured glove
Cuff style	Beaded
Length	Complete System: 810mm/32in
Palm thickness	0.15mm/5.91mil
Finger thickness	0.18mm/7.09mil
Port size	10-12in/254-305mm
Compatibility	ISO Class 4 & EU GMP Grade A
Packaging	One system-consisting of sleeve, size 8.0 glove (marked L) and channel ring/O-ring assembly packed in inner PE bag; One system-consisting of sleeve, size 8.0 glove (marked R) and channel ring/O-ring assembly packed in inner PE bag; two inner bags (two systems – one L & one R) packed per outer PE bag; 10 outer bags (20 systems) per lined white Correx box

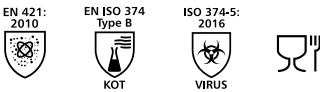
DESCRIPTION

- Clean & sterile sleeve/glove system, Nitrile sleeve attached to a size 8.0 hand specific Polychloroprene (BioClean™ BPZS) glove by a channel ring and O-ring. Sold by the pair, individually packaged

KEY FEATURES

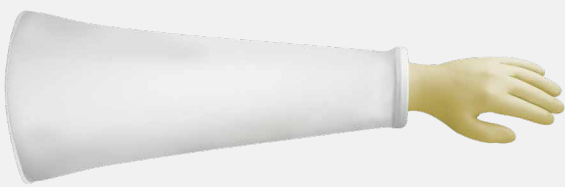
- Sleeve & glove tested against ASTM D6978-05 for handling chemo drugs
- Ultra-clean surface ensures product protection
- Sleeve 100% inspection & air leak tested (prior to being guillotined)

PERFORMANCE RATINGS



BioClean™  
GSG10NIT85

Validated Sterile Nitrile RABS/Isolator Sleeve/  
Glove System



Material	Nitrile sleeve polychloroprene glove (BPZS)
Glove design	Hand specific glove
Surface	Textured glove
Cuff style	Beaded
Length	Complete System: 810mm/32in
Palm thickness	0.15mm/5.91mil
Finger thickness	0.18mm/7.09mil
Port size	10-12in/254-305mm
Compatibility	ISO Class 4 & EU GMP Grade A
Packaging	One system-consisting of sleeve, size 8.5 glove (marked L) and channel ring/O-ring assembly packed in inner PE bag; One system-consisting of sleeve, size 8.5 glove (marked R) and channel ring/O-ring assembly packed in inner PE bag; two inner bags (two systems – one L & one R) packed per outer PE bag; 10 outer bags (20 systems) per lined white Correx box

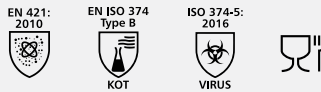
DESCRIPTION

- Clean & sterile sleeve/glove system, Nitrile sleeve attached to a size 8.5 hand specific Polychloroprene (BioClean™ BPZS) glove by a channel ring and O-ring. Sold by the pair, individually packaged

KEY FEATURES

- Sleeve & glove tested against ASTM D6978-05 for handling chemo drugs
- Ultra-clean surface ensures product protection
- Sleeve 100% inspection & air leak tested (prior to being guillotined)

PERFORMANCE RATINGS



BioClean™  
GSG10NITXLMA

Validated Sterile Nitrile RABS/Isolator Sleeve/  
Glove System

Material	Nitrile sleeve/polychloroprene glove (S-BFAP)
Glove design	Ambidextrous glove
Surface	Textured glove
Cuff style	Beaded
Length	Complete System: 914mm/36in
Palm thickness	0.10mm/3.94mil
Finger thickness	0.12mm/4.72mil
Port size	10-12in/254-305mm
Compatibility	ISO Class 4 & EU GMP Grade A
Packaging	One system-consisting of sleeve, size 8.0-8.5 glove and channel ring/O-ring assembly packed in inner PE bag; One system-consisting of sleeve, size 8.0-8.5 glove and channel ring/O-ring assembly packed in inner PE bag; two inner bags (two systems) packed per outer PE bag; 10 outer bags (20 systems) per lined white Correx box

DESCRIPTION

- Clean & sterile sleeve/glove system, Nitrile sleeve attached to a size 8.0-8.5 ambidextrous Polychloroprene (BioClean™ S-BFAP) glove by a channel ring and O-ring. Sold by the pair, individually packaged

KEY FEATURES

- Sleeve & glove tested against ASTM D6978-05 for handling chemo drugs
- Ultra-clean surface ensures product protection
- Sleeve 100% inspection & air leak tested (prior to being guillotined)

PERFORMANCE RATINGS



BioClean™  
GSG10NITXLMA





BioClean™  
CGL

BioClean™  
CGL

Non-Sterile RABS/Isolator Gloves

Material	Nitrile
Glove design	5 Finger Ambidextrous Size 9.75
Surface	Smooth
Cuff style	Beaded
Length	840mm/33in
Palm thickness	0.45mm/17.72mil
Finger thickness	0.55mm/21.65mil
Re-ordea code: port size (in/mm)	CGL20NIT59: 8-10/203-254 CGL33NIT59: 10-12/254-305 CGL36NIT59: 12-14/305-356
Compatibility	ISO Class 4
Packaging	Triple bagged: One piece per sealed inner PE bag; one inner bag per sealed second inner PE bag; one second inner bag per sealed outer PE bag; 20 outer bags per lined white Correx polyethylene box (20 pieces)

DESCRIPTION

- BioClean™ RABS and Isolator Gloves are manufactured from Nitrile with incredibly low levels of particles and excellent ESD properties
- Designed for use in product contact areas, our CGL series of gloves are cleanroom processed and packed, and are available in a range of port sizes

KEY FEATURES

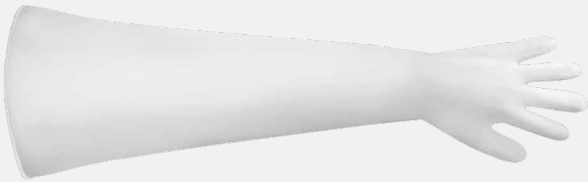
- Tested against ASTM D6978 standard for handling chemo drugs
- Ultra-clean surface ensures product protection
- 100% inspected and air leak tested

PERFORMANCE RATINGS



BioClean™  
CHG

Non-Sterile High-Grip RABS/Isolator Gloves



Material	Nitrile
Glove design	5 Finger Ambidextrous Size 9.75
Surface	Smooth
Cuff style	Beaded
Length	840mm/33in
Palm thickness	0.45mm/17.72mil
Finger thickness	0.55mm/21.65mil
Re-ordea code: port size (in/mm)	CHG15NIT59: 6-8/152-203 CHG20NIT59: 8-10/203-254 CHG33NIT59: 10-12/254-305 CHG36NIT59: 12-14/304-356
Compatibility	ISO Class 4
Packaging	Triple bagged: One piece per sealed inner PE bag; one inner bag per sealed second inner PE bag; one second inner bag per sealed outer PE bag; 20 outer bags per lined inner white Correx polyethylene box (20 pieces)

DESCRIPTION

- BioClean™ RABS and Isolator Gloves are manufactured from nitrile with incredibly low levels of particles and excellent ESD properties
- Designed for precision work when increased grip is required, our non-sterile cleanroom processed and packed CHG series of high grip gloves are available in a range of port sizes

KEY FEATURES

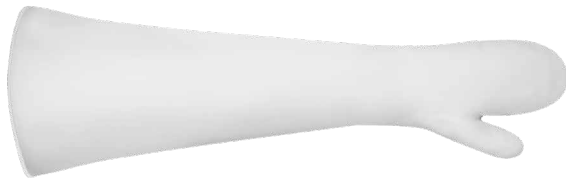
- Tested against ASTM D6978 standard for handling chemo drugs
- Ultra-clean surface ensures product protection
- 100% inspected and air leak tested

PERFORMANCE RATINGS



BioClean™  
CGL30NITM9

Non-Sterile Nitrile RABS/Isolator Mitten



Material	Nitrile
Glove design	Mitten
Surface	Smooth
Cuff style	Beaded
Length	840mm/33in
Palm thickness	0.45mm/17.72mil
Finger thickness	0.55mm/21.66mil
Port size	10-12in/254-305mm
Compatibility	ISO Class 4
Packaging	Triple bagged: One piece per sealed inner PE bag; one inner bag per sealed second inner PE bag; one second inner bag per sealed outer PE bag; 20 outer bags per lined inner white Correx polyethylene box (20 pieces)

DESCRIPTION

- BioClean™ RABS and Isolator Mittens are manufactured from nitrile with incredibly low levels of particles and excellent ESD properties
- Designed for precision work when increased grip is required, our non-sterile CGL mittens are cleanroom processed and packed

KEY FEATURES

- Tested against ASTM D6978-05 for handling chemo drugs
- 100% air leak tested
- Ultra-clean surface ensures product protection
- Specially designed to minimize hand fatigue

PERFORMANCE RATINGS





## CHEMO SAFETY WEAR



## WHY ANSELL DOES NOT USE THE TEST METHOD EN 16523-1:2015 AS SET OUT IN THE EN ISO 374 STANDARD WHEN TESTING AGAINST CHEMOTHERAPY DRUGS

Ansell gloves are tested against the most stringent standard, the American ASTM D6978-05 which employs a testing limit 100 times more stringent than its European counterpart. We do not test gloves using the EN16523-1:2015 (formerly EN374-3) method as this benchmark is not safe when assessing the suitability of a glove for protection against chemotherapy drugs.

To illustrate how the two standards parameters compare we have highlighted the consequences in the table below.

Difference	EN16523-1:2015 *	ASTM D6978-05 **	CONSEQUENCE
<b>Thickness of the Test Specimens</b>	Three samples have to be taken from the palm of the glove. New requirement for gloves 400mm or longer-three additional samples must be taken from the cuff area and tested for permeation.	Sample has to be taken from either the palm or the cuff of the glove, whichever is the thinner.	The ASTM D6978-05 requirement ensures that the area of greatest risk is assessed. The cuff is usually the thinnest part of the glove, so gloves tested under EN16523-1:2015 are not challenged as rigorously.
<b>Test Temperature</b>	Testing to be conducted at a temperature of 23°±1°C.	Testing to be conducted at a temperature of 35°±2°C.	The higher temperature specified by ASTM D6978-05 has two consequences: 1. The temperature is 2°C below body core temperature, which is similar to that of a human hand. 2. Permeation rates are greater at higher temperatures, making the test more stringent.
<b>Test Chemicals</b>	Testing is carried out against 1, 3 or 6 chemicals from a list of 18 chemicals (EN374-1). None of the chemicals is a chemotherapy drug.	A minimum of nine chemotherapy drugs must be used for the test. Seven of them are mandatory under the standard; the other two must be selected from a pre-defined list.	The EN374-1:2016 list of chemicals will not give a representation of how the gloves will perform when challenged by chemotherapy drugs. Users purchasing these gloves for chemo use should be advised to have them tested for suitability.
<b>Permeation Limit</b>	Breakthrough of the test chemical is deemed to have occurred when the permeation rate has reached 1.00µg/cm <sup>2</sup> /min.	Breakthrough of the test chemical is deemed to have occurred when the permeation rate has reached 0.01µg/cm <sup>2</sup> /min.	The ASTM D6978-05 test limit is set at 100th of the EN16523-1:2015 limit. This requirement is far more stringent and reflects the potential hazards presented by chemotherapy drugs.

\* EN16523-1:2015 Determination of material resistance to permeation by chemicals Part 1: Permeation by liquid chemical under conditions of continuous contact

\*\* ASTM D6978-05 Standard practice for assessment of resistance of medical gloves to permeation by chemotherapy drugs

### Product Contamination Concerns

While personal protection is the first concern when selecting a glove, protecting the product from external sources of contamination is equally important. Manufacturing of chemotherapy drugs is conducted under good manufacturing practices (GMP) in a sterile cleanroom environment and as such, product contamination must be avoided. A variety of sources of potential contamination must be taken into consideration, including biological, particulate and undesirable chemical residues. A contaminated product from any of these sources can lead to unacceptable production lots resulting in a costly and time consuming scenario to rectify.

### Recommended Solutions




How is an appropriate glove chosen for use with chemotherapy agents? Several factors need to be taken into consideration.

- Protection against:
  1. Specific drugs being used
  2. Other hazards or chemicals in the work place
- Protection of the products from external contamination
- Comfort
- Fit
- Ergonomics
- Costs

Additionally, a common practice of wearing two pairs of single use gloves (double donning) can also enhance the end user's protection against chemotherapy agents provided the gloves are chemotherapy drug approved and proven to be elastic and comfortable. In consideration of all these factors, Ansell has several product offerings that fulfill these challenging and very specific needs of this environment.



For sterile and clean environments, the following sterile products have been tested against chemotherapy drugs using ASTM D6978 Standard:  
For non-sterile environments, we have non-sterile solutions (MICROFLEX® 93-260 & 93-360) that are ideally suited to general laboratory work.

					
Ansell Gloves	TouchNTuff® 83-500	TouchNTuff® 93-700	TouchNTuff® DermaShield™ 73-701	TouchNTuff® 73-500	MICROFLEX® 93-260 & 93-360
Polymer	Sterile Polyisoprene	Sterile Nitrile	Sterile Neoprene (Polychloroprene)	Sterile Neoprene (Polychloroprene)	Non-sterile Nitrile / Neoprene (Polychloroprene)
Chemotherapy Drug Tested	Minimum Breakthrough Time (Mins) using ASTM D6978 Standard Breakthrough of the test chemical is deemed to have occurred when the permeation rate has reached 0.01 µg/cm²/min				
Carmustine	10.2	2.5	86.6	35.7	69.2
Cisplatin	No breakthrough up to 240 mins	No breakthrough up to 240 mins	No breakthrough up to 240 mins	NT	No breakthrough up to 240 mins
Cyclo-phosphamide	No breakthrough up to 240 mins	No breakthrough up to 240 mins	No breakthrough up to 240 mins	No breakthrough up to 240 mins	No breakthrough up to 240 mins
Cytarabine	No breakthrough up to 240 mins	NT	No breakthrough up to 240 mins	No breakthrough up to 240 mins	NT
Docetaxel	No breakthrough up to 240 mins	NT	No breakthrough up to 240 mins	No breakthrough up to 240 mins	NT
Doxorubicin Hydrochloride	No breakthrough up to 240 mins	No breakthrough up to 240 mins	No breakthrough up to 240 mins	No breakthrough up to 240 mins	No breakthrough up to 240 mins
Etoposide (Toposar)	No breakthrough up to 240 mins	No breakthrough up to 240 mins	No breakthrough up to 240 mins	No breakthrough up to 240 mins	No breakthrough up to 240 mins
Fluorouracil	No breakthrough up to 240 mins	No breakthrough up to 240 mins	No breakthrough up to 240 mins	No breakthrough up to 240 mins	No breakthrough up to 240 mins
Gemcitabine	No breakthrough up to 240 mins	NT	No breakthrough up to 240 mins	No breakthrough up to 240 mins	NT
Ifosfamide	No breakthrough up to 240 mins	NT	No breakthrough up to 240 mins	No breakthrough up to 240 mins	NT
Irinotecan	No breakthrough up to 240 mins	NT	No breakthrough up to 240 mins	No breakthrough up to 240 mins	NT
Methotrexate	No breakthrough up to 240 mins	No breakthrough up to 240 mins	No breakthrough up to 240 mins	No breakthrough up to 240 mins	No breakthrough up to 240 mins
Mitomycin	No breakthrough up to 240 mins	NT	No breakthrough up to 240 mins	No breakthrough up to 240 mins	NT
Oxaliplatin	No breakthrough up to 240 mins	NT	No breakthrough up to 240 mins	No breakthrough up to 240 mins	NT
Paclitaxel (Taxol)	No breakthrough up to 240 mins	No breakthrough up to 240 mins	No breakthrough up to 240 mins	No breakthrough up to 240 mins	No breakthrough up to 240 mins
Thiotepa	11.5	No breakthrough up to 240 mins	98.1	47.6	67.6
Vincristine Sulfate	No breakthrough up to 240 mins	NT	No breakthrough up to 240 mins	No breakthrough up to 240 mins	NT

NT = Not Tested  
\* MICROFLEX® 93-360 is same base glove as MICROFLEX® 93-260 with additional after treatments and clean packaging.

For sterile and clean environments, the following products have been tested against chemotherapy drugs using ASTM D6978 Standard:

						
Ansell Gloves	BioClean™ BUPS	BioClean™ S-BFAP	BioClean™ BENS	BioClean™ BNPLS	BioClean™ BPZS	BioClean™ BNPS
Polymer	Sterile Neoprene (Polychloroprene)	Sterile Neoprene (Polychloroprene)	Sterile Nitrile	Sterile Nitrile	Sterile Nitrile	Sterile Nitrile
Chemotherapy Drug Tested	Minimum Breakthrough Time (Minutes) using ASTM D6978 Standard Breakthrough of the test chemical is deemed to have occurred when the permeation rate has reached 0.01 µg/cm²/min					
Cisplatin	No breakthrough up to 480 minutes	No breakthrough up to 240 minutes	No breakthrough up to 480 minutes	No breakthrough up to 480 minutes	No breakthrough up to 480 minutes	No breakthrough up to 480 minutes
Carmustine	2	26	12	2	50	2.5
Cyclophosphamide	No breakthrough up to 480 minutes	No breakthrough up to 240 minutes	No breakthrough up to 480 minutes	No breakthrough up to 480 minutes	No breakthrough up to 480 minutes	No breakthrough up to 480 minutes
Doxorubicin Hydrochloride	No breakthrough up to 480 minutes	No breakthrough up to 240 minutes	No breakthrough up to 480 minutes	No breakthrough up to 480 minutes	No breakthrough up to 480 minutes	No breakthrough up to 480 minutes
5-Fluorouracil	No breakthrough up to 480 minutes	No breakthrough up to 240 minutes	No breakthrough up to 480 minutes	No breakthrough up to 480 minutes	No breakthrough up to 480 minutes	No breakthrough up to 480 minutes
Methotrexate	No breakthrough up to 480 minutes	No breakthrough up to 240 minutes	No breakthrough up to 480 minutes	No breakthrough up to 480 minutes	No breakthrough up to 480 minutes	No breakthrough up to 480 minutes
Etoposide	No breakthrough up to 480 minutes	No breakthrough up to 240 minutes	No breakthrough up to 480 minutes	No breakthrough up to 480 minutes	No breakthrough up to 480 minutes	No breakthrough up to 480 minutes
Paclitaxel	No breakthrough up to 480 minutes	No breakthrough up to 240 minutes	No breakthrough up to 480 minutes	No breakthrough up to 480 minutes	No breakthrough up to 480 minutes	No breakthrough up to 480 minutes
Thiotepa	48	35	30	1	108	111





CATEGORY III

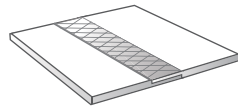
PERFORMANCE RATINGS

EN 13034:2005  
+ A1:2009

TYPE PB(6)

PROTECTION CATEGORIES

ULTRASONICALLY SEALED SEAMS



BioClean-C™  
S-BCAS & BCAS

Chemotherapy Protective Apron with Sleeves

Material	BioClean-C™ CleanTough™ blue material and 100% polyester elasticated cuffs
Sterility	Sterile or Non-Sterile
Construction	Adjustable neck, tie fastening at waist. Ultrasonically sealed and taped seams
Size	S, M, L
Compatibility	ISO Class 4 & EU GMP Grade A
Protection	<ul style="list-style-type: none"><li>Chemical &amp; Liquid</li><li>Liquid Splash</li><li>Particulate</li></ul>
Packaging	One piece per sealed inner PE bag; one inner bag per sealed outer PE bag; 50 outer bags per lined carton (50 pieces)

- DESCRIPTION
- The BioClean-C™ Chemotherapy Protection Apron with Sleeves is manufactured from lightweight low-linting CleanTough™ blue material, and features tie tapes at the rear and an adjustable neck fastening for easy donning and comfort
  - Providing protection against a range of chemotherapy drugs, and tested against ASTM F739-12 standard\*

- KEY FEATURES
- Tested against permeation standard ASTM F739-12
  - Tested against ISO 16604:2004 for penetration by blood-borne pathogens
  - Tie tapes at rear
  - 100% polyester elastic cuffs for a secure hold at wrist
  - Ultrasonically sealed and taped seams
  - Silicone-free

FEATURES



Ultrasonically sealed seams



Tie-tapes at rear



Neck fastening

\* Please see product datasheet for tested drug permeation times.



CATEGORY III

PERFORMANCE RATINGS

EN 13034:2005  
+ A1:2009

TYPE PB(6)

PROTECTION CATEGORIES



BioClean-C™  
BCDA

Chemotherapy Protective Apron

Material	BioClean-C™ CleanTough™ blue material
Sterility	Non-Sterile
Construction	Adjustable neck, tie fastening at waist
Size	S, M, L
Compatibility	ISO Class 4
Protection	<ul style="list-style-type: none"><li>Chemical &amp; Liquid</li><li>Liquid Splash</li><li>Particulate</li></ul>
Packaging	One piece per sealed inner PE bag; one inner bag per sealed outer PE bag; 50 outer bags per lined carton (50 pieces)

- DESCRIPTION
- The BioClean-C™ Chemotherapy Protective Apron is manufactured from lightweight low-linting CleanTough™ material, and features tie tapes at the rear and an adjustable neck fastening for easy donning and comfort
  - Providing protection against a range of chemotherapy drugs and tested against ASTM F739-12 standard\*

- KEY FEATURES
- Tested against permeation standard ASTM F739-12
  - Tested against ISO 16604:2004 for penetration by blood-borne pathogens
  - Tie tapes at rear
  - Adjustable neck fastening
  - Lightweight low-linting CleanTough™ material
  - Silicone-free

\* Please see product datasheet for tested drug permeation times.



BioClean-C™  
S-BCSC & BCSC

Chemotherapy Protective Sleeve Cover



Material	BioClean-C™ CleanTough™ blue material
Sterility	Sterile or Non-Sterile
Construction	Ultrasonically sealed seams covered with protective tape
Size	Universal
Compatibility	ISO Class 4 & EU GMP Grade A
Protection	<ul style="list-style-type: none"><li>• Chemical &amp; Liquid</li><li>• Liquid Splash</li><li>• Particulate</li></ul>
Packaging	<b>S-BCSC:</b> One pair per sealed inner PE bag; 15 inner bags per sealed outer PE bag; six outer bags per lined carton (90 pairs) <b>BCSC:</b> 30 pieces per sealed inner PE bag; one inner bag per sealed outer PE bag; six outer bags per lined carton (180 pieces)

DESCRIPTION

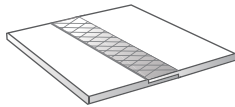
- The BioClean-C™ Chemotherapy Protective Sleeve Covers have been specially developed for protection against a range of chemotherapy drugs and tested against ASTM F739-12 standard\*
- Constructed from lightweight low-linting CleanTough™ blue material, the sleeve covers feature elasticated openings for stability on the arm and has been tailored for quick and simple donning

KEY FEATURES

- Ultrasonically sealed seams with protective tape
- Elasticated for secure fit
- Lightweight low-linting CleanTough™ material
- Tested against permeation standard ASTM F739-12
- Tested against ISO 16604:2004 for penetration by blood-borne pathogens
- Silicone-free

CATEGORY III

ULTRASONICALLY  
SEALED SEAMS



PERFORMANCE RATINGS



PROTECTION  
CATEGORIES



\* Please see product datasheet for tested drug permeation times.

BioClean™ ChemPrep  
S-BCPM

Sterile Prep-Mat



Material	Top layer - Polyolefin apertured film Middle layer - Air-laid paper Bottom Layer - Polyethylene
Weight	210gsm
Length	56cm (22") / 40cm (16")
Compatibility	ISO Class 5 & EU GMP Grade A
Color	Blue
Sterilization	Gamma irradiation
Packaging	<b>S-BPCM-4025B</b> (40cm x 25cm): One piece per sealed inner PE bag; one inner bag per second PE bag; 50 double bags per sealed outer PE bag; four outer bags per lined carton (200 pieces) <b>S-BPCM-5640B</b> (56cm x 40cm): One piece per sealed inner PE bag; one inner bag per second PE bag; 25 double bags per sealed outer PE bag; four outer bags per lined carton (100 pieces)

KEY FEATURES

- Latex-free 3-layer construction
- Mesh upper layer for even distribution
- Highly absorbent middle layer
- Impermeable bottom layer
- ISO Class 5 & EU GMP Grade A



BODY PROTECTION



Clean & sterile /non-sterile disposable garments  
& accessories



BioClean-D™  
S-BDSH  
Disposable Drop-down Garment

Material	Anti-static BioClean-D™ CleanTough™ white material
Sterility	Sterile
Construction	Bound seams with single needle stitching
Size	XS, S, M, L, XL, 2XL, 3XL, 4XL, 5XL, 6XL, 7XL, 8XL
Compatibility	ISO Class 4 & EU GMP Grade A
Protection	Particulate
Packaging	One piece per sealed inner PE bag; one inner bag per sealed outer PE bag; 20 outer bags per lined carton (20 pieces) Please note: sizes 3XL, 4XL, 5XL, 6XL, 7XL & 8XL 15 coveralls per carton

Please note: Sizes 4XL, 5XL, 6XL, 7XL & 8XL are subject to minimum order quantity (MOQ) and lead times

DESCRIPTION

- The BioClean-D™ Drop-down Garment with Hood is a sterile anti-static disposable garment manufactured from low-linting CleanTough™ material
- Its unique design offers true aseptic donning, with internal colored tabs to indicate safe touch points to prevent touching the outside surface
- The innovative up and over donning design eliminates the risk of the garment touching the floor, and strategically placed quick release tabs (to hold and remove during zip closure) ensure aseptic donning throughout the donning process

KEY FEATURES

- Quick & easy to don
- Anti-static & low-linting
- Unique up & over design
- Aseptic donning technique
- Foot-loop to aid smooth closure of zip

FEATURES



Quick Release Tabs



Thumb loop



Ankle foot-loop

PERFORMANCE RATINGS



BOUND SEAM



BioClean-D™ DROP-DOWN GARMENT STEP BY STEP DONNING PROCEDURE



Remove drop-down coverall.



Hold internal red tab in your right hand and white tab in your left. Shake the garment to un-fold.



Insert one arm and then the other. Put thumbs through thumbloops.



Hold the inside of the coverall and bring over your head.



Shake garment down allowing it to drop-down over body or use external tabs to pull garment down.



Put right foot through ankle opening and then foot-loop.



Hold blue tab on right side of waist. Pull zip up ensuring you keep your right leg straight.



BioClean-D™ DROP-DOWN GARMENT STEP BY STEP DONNING PROCEDURE



Still holding blue tab pull zip round to the blue tab on the left hand side of waist.



Pull off blue tab on the right hand side.



Hold the blue tab on the left side of waist with your left hand.



Pull zip down with your right hand and remove the blue tab at the waist as you do so.



Pull zip down with your right hand and remove the blue tab at the waist as you do so.



Remove the zip tab by pulling the tab through the zip hole. Discard all tabs.



Don sterile BioClean-D™ overboots using aseptic technique. Complete gowning by donning goggles and a second pair of sterile gloves.



CATEGORY III

PERFORMANCE RATINGS



PROTECTION CATEGORY



BOUND SEAM



BioClean-D™ S-BDCHT and BDCHT

Disposable Coverall with Hood

Material	Anti-static BioClean-D™ CleanTough™ white material
Sterility	Sterile or Non-Sterile
Construction	Bound seams with single needle stitching
Size	XS, S, M, L, XL, 2XL, 3XL, 4XL, 5XL, 6XL, 7XL
Compatibility	ISO Class 4 & EU GMP Grade A
Protection	<ul style="list-style-type: none"><li>Chemical &amp; Liquid</li><li>Liquid Splash</li><li>Particulate</li></ul>
Packaging	One piece per sealed inner PE bag; one inner bag per sealed outer PE bag; 20 outer bags per lined carton (20 pieces) Please note: Size 3XL, 4XL, 5XL, 6XL & 7XL 15 pieces per carton

Please note: Sizes 4XL, 5XL, 6XL, 7XL & 8XL are subject to minimum order quantity (MOQ) and lead times

DESCRIPTION

- The BioClean-D™ Coverall with Hood is a disposable garment featuring a front zip with protective flap, elasticated hood, back, cuffs and ankles, and thumb loops to ensure a secure hold
- The anti-static lightweight low-linting CleanTough™ material provides comfort and protection from a range of chemicals

KEY FEATURES

- Anti-static lightweight low-linting material
- Three-piece hood construction for best fit
- Thumb loops to ensure a secure hold
- Zip with sealable cover
- Elasticated hood, back, cuffs and ankles
- Silicone-free

FEATURES



Elasticated back



Thumb loop



Elasticated ankle



BioClean-D™  
S-BDCCT and BDCCT

Disposable Coverall with Collar

Material	Anti-static BioClean-D™ CleanTough™ white material
Sterility	Sterile or non-sterile
Construction	Bound seams with single needle stitching
Size	S, M, L, XL, 2XL, 3XL, 4XL, 5XL, 6XL, 7XL
Compatibility	ISO Class 4 & EU GMP Grade A
Protection	<ul style="list-style-type: none"><li>• Chemical &amp; Liquid</li><li>• Liquid Splash</li><li>• Particulate</li></ul>
Packaging	One piece per sealed inner PE bag; one inner bag per sealed outer PE bag; 20 outer bags per lined carton (20 pieces) Please note: Size 3XL, 4XL, 5XL, 6XL, & 7XL 15 pieces per carton

Please note: sizes 3XL, 4XL, 5XL, 6XL & 7XL subject to minimum order quantity (MOQ) and lead time

DESCRIPTION

- The BioClean-D™ Coverall with collar features a front zip with protective flap, elasticated back, cuffs and ankles, and thumb loops to ensure a secure hold
- The anti-static lightweight low-linting CleanTough™ material provides comfort and protection from a range of chemicals

KEY FEATURES

- Anti-static lightweight low-linting material
- Thumb loops to ensure a secure hold
- Zip with sealable cover
- Elasticated back, cuffs and ankles
- Silicone-free

FEATURES



Elasticated back



Thumb loop



Elasticated Ankle

CATEGORY III

PERFORMANCE RATINGS



PROTECTION CATEGORY



BOUND SEAM



BioClean-D™  
S-BDFC and BDFC

Disposable Coverall with Integrated Boots

Material	Anti-static BioClean-D™ CleanTough™ white material & polyurethane soles
Sterility	Sterile or non-sterile
Construction	Bound seams with single needle stitching
Size	S, M, L, XL, 2XL, 3XL, 4XL
Compatibility	ISO Class 4 & EU GMP Grade A
Protection	<ul style="list-style-type: none"><li>• Chemical &amp; Liquid</li><li>• Liquid Splash</li><li>• Particulate</li></ul>
Packaging	One piece per sealed inner PE bag; one inner bag per sealed outer PE bag; 20 outer bags per lined carton (20 pieces) Please note: sizes 3XL & 4XL 15 pieces per carton

Please note: Non-sterile version all sizes are subject to minimum order quantity (MOQ) and lead time

DESCRIPTION

- The BioClean-D™ Coverall with Hood and Integrated Boots is a disposable garment offering comfort and head-to-toe protection
- Featuring a front zip with protective flap, elasticated hood, back, cuffs and ankles, and thumb loops to ensure a secure hold
- The integrated boots feature slip-resistant soles to ensure every step is taken with confidence

KEY FEATURES

- Anti-static lightweight and low-linting material
- Three-piece hood construction for best fit
- Thumb loops to ensure a secure hold
- Zip with sealable cover
- Elasticated hood, back, and cuffs
- Ties at ankles for a secure fit and slip resistant soles
- Silicone-free

FEATURES



Elasticated back



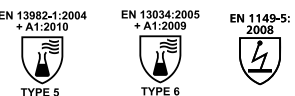
Thumb loop



Integrated overboots

CATEGORY III

PERFORMANCE RATINGS



PROTECTION CATEGORY



BOUND SEAM







BioClean-D™  
S-BDLC and BDLC

Disposable Lab Coat

Material	Anti-static BioClean-D™ CleanTough™ white material
Sterility	Non-Sterile or Sterile
Construction	Bound seams with single needle stitching
Size	S, M, L, XL, XXL
Compatibility	Non-critical environments
Protection	Liquid Splash
Packaging	One piece per sealed inner PE bag; one inner bag per sealed outer PE bag; 30 outer bags per lined carton (30 pieces)

DESCRIPTION

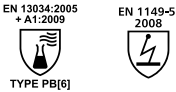
- The BioClean-D™ disposable Lab Coat is manufactured from anti-static lightweight CleanTough™ material and features press stud fastenings, open cuffs and three pockets

KEY FEATURES

- Lightweight CleanTough™ material
- Press stud fastening
- Open cuffs & rear vent
- Three deep pockets
- Silicone-free

CATEGORY III

PERFORMANCE RATINGS



PROTECTION CATEGORY



FAQ

WHAT IS CLEANTOUGH™ MATERIAL?

CleanTough™ material is spun bonded, non-woven polypropylene laminated with a film of polyethylene. This allows comfort and flexibility during use and protection against fine sprays and particles.

WHAT IS THE DIFFERENCE BETWEEN  
TYPE 6 & TYPE PB[6]?

The coveralls are designed to provide whole body protection against light liquid spray and these are covered under Type 6. However, there are also items in the range which cover just part of the body e.g. sleeve covers. Because these only provide partial body protection, they are referred to as PB[6].

BioClean-D™  
S-BDSC-L and BDSC-L

Disposable Sleeve Covers



Material	Anti-static BioClean-D™ CleanTough™ white material
Construction	Bound seams with single needle stitching
Size	Universal
Compatibility	ISO Class 4 & EU GMP Grade A
Protection	<ul style="list-style-type: none"><li>• Chemical &amp; Liquid</li><li>• Liquid Splash</li><li>• Particulate</li></ul>
Packaging	<b>S-BDSC-L:</b> One pair per sealed inner PE bag; 15 inner bags per sealed outer PE bag; six outer bags per lined carton (90 pairs) <b>BDSC-L:</b> 30 pieces per sealed inner PE bag; one inner bag per sealed outer PE bag; six outer bags per lined carton (180 pieces)

DESCRIPTION

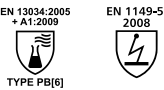
- Offering comfort, protection and quick and simple donning, the single use BioClean-D™ Disposable Sleeve Covers are constructed from anti-static, lightweight and low-linting CleanTough™ material
- Featuring elasticated openings for a firm fit

KEY FEATURES

- Extra long length 500mm
- Excellent ESD Properties
- Lightweight & low-linting
- Silicone-free

CATEGORY III

PERFORMANCE RATINGS



PROTECTION CATEGORIES



BOUND SEAM



BioClean-D™  
S-BDHD-L and BDHD-L

Disposable Hood-Longer Length



Material	Anti-static BioClean-D™ CleanTough™ white material
Construction	Bound seams with single needle stitching
Size	Universal
Compatibility	ISO Class 4 & EU GMP Grade A
Protection	<ul style="list-style-type: none"><li>• Chemical &amp; Liquid</li><li>• Liquid Splash</li><li>• Particulate</li></ul>
Packaging	<b>S-BDHD-L:</b> One piece per sealed inner PE bag; 20 inner bags per sealed outer PE bag; six outer bags per lined carton (120 pieces) <b>BDHD-L:</b> 20 pieces per sealed inner PE bag; one inner bag per sealed outer PE bag; six outer bags per lined carton (120 pieces)

DESCRIPTION

- The BioClean-D™ Hood has a three-piece design to ensure a perfect fit
- Made from anti-static lightweight CleanTough™ material for comfort, the hood features an extra-long yoke for maximum coverage when worn in conjunction with a coverall with collar, and features an elasticated face-opening with reinforced edges to avoid contamination entering the controlled environment

KEY FEATURES

- Extra-long yoke for maximum coverage
- Lightweight low-linting CleanTough™ material
- Excellent ESD properties
- PPE Cat 3 Type PB [6]
- Silicone-free

CATEGORY III

PERFORMANCE RATINGS



PROTECTION CATEGORIES



BOUND SEAM



BioClean-D™  
S-BDOB and BDOB

Disposable Overboots



Material	Anti-static BioClean-D™ CleanTough™ white material & polyurethane sole
Construction	Bound seams with single needle stitching
Size	Universal
Compatibility	ISO Class 4 & EU GMP Grade A
Protection	<ul style="list-style-type: none"><li>Chemical &amp; Liquid</li><li>Liquid Splash</li><li>Particulate</li></ul>
Packaging	<b>S-BDOB:</b> One pair per sealed inner PE bag; 15 inner bags per sealed outer PE bag; five outer bags per lined carton (75 pairs) <b>BDOB:</b> 30 pieces per sealed inner PE bag; one inner bag per sealed outer PE bag; five outer bags per lined carton (150 pieces)

DESCRIPTION

- The BioClean-D™ Disposable Overboots are constructed from anti-static low-linting CleanTough™ material
- Feature a slip-resistant soles and tie fastenings for quick and easy donning

KEY FEATURES

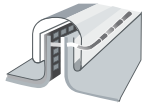
- Lightweight & low-linting CleanTough™ material
- Elasticated opening for a firm fit
- Easy tie fastenings for a secure hold on leg
- Slip-resistant sole
- Silicone-free

CATEGORY III

PERFORMANCE RATINGS



BOUND SEAM



PROTECTION CATEGORIES



BioClean-D™  
S-BDOB-L and BDOB-L

Disposable Overboots - Longer Length



Material	Anti-static BioClean-D™ CleanTough™ white material & polyurethane sole
Construction	Bound seams with single needle stitching
Size	Universal
Compatibility	ISO Class 4 & EU GMP Grade A
Protection	<ul style="list-style-type: none"><li>Chemical &amp; Liquid</li><li>Liquid Splash</li><li>Particulate</li></ul>
Packaging	<b>S-BDOB-L:</b> One pair per sealed inner PE bag; 15 inner bags per sealed outer PE bag; five outer bags per lined carton (75 pairs) <b>BDOB-L:</b> 30 pieces per sealed inner PE bag; one inner bag per sealed outer PE bag; five outer bags per lined carton (150 pieces)

DESCRIPTION

- Offering exceptional comfort and protection, the BioClean-D™ longer (height 500mm) Overboots are constructed from anti-static low-linting CleanTough™ material
- Feature a slip-resistant sole and easy tie fastenings at the top and ankle

KEY FEATURES

- Longer length-500mm
- Low-linting
- Tie-fastenings at top & ankle
- Slip-resistant sole
- Silicone-free

CATEGORY III

PERFORMANCE RATINGS



BOUND SEAM



PROTECTION CATEGORIES



BioClean™  
S-BDOS

Disposable Sterile Overshoes



Material	<b>Top:</b> Spunbonded non-woven polypropylene fabric <b>Sole:</b> Embossed cast polyethylene film <b>Elastic:</b> Latex-free
Size	16in
Compatibility	ISO Class 4
Protection	Particulate
Packaging	One pair per sealed inner PE bag; 15 inner bags per sealed outer PE bag; 10 outer bags per lined carton (150 pairs)

DESCRIPTION

- BioClean™ Dual Disposable Sterile Overshoes are practical and durable, featuring a heavy-duty textured cast polyethylene slip-resistant sole for a secure footing

KEY FEATURES

- Non-woven spunbonded polypropylene
- Heavy duty slip-resistant sole
- Practical & durable
- Latex-free elastic

BioClean™  
S-CPE

Disposable Overshoes



Material	Cast polyethylene
Size	16in
Tearing strength	1.6kg (min)
Protection	Particulate
Packaging	One pair per sealed inner PE bag; 10 inner bags per sealed outer PE bag; 15 outer bags per lined carton (150 pairs) *Please note: minimum order quantity (MOQ) 18 cartons

DESCRIPTION

- BioClean™ S-CPE Disposable Overshoes are the economical choice combining very low levels of particle shedding and exceptional strength. Their heavy-duty construction means they are durable and resistant to tears and abrasions

KEY FEATURES

- Low-linting
- Durable
- Tear and abrasion resistant



BioClean™  
ESD  
Disposable Overshoes



Material	<b>Shoe:</b> Non-woven spun-bonded polypropylene <b>Tape:</b> Polyester filament yarn (96%) with conductive nylon carbon filament yarn (4%) <b>Conductivity:</b> Consistently below 35 Megohms
Size	16in (White), 18in (White), 18in (Blue)
Tearing strength	0.9kg (min)
Protection	Particulate
Packaging	100 pieces per sealed inner PE bag; one inner bag per sealed outer PE bag; 10 outer bags per lined carton (1000 pieces)

Please Note: When donning the ESD overshoes ensure that the loose black tape is located at the back/heel of the foot and is tucked securely inside the user's sock making sure the tape is in direct contact with the skin.

- DESCRIPTION**
- BioClean™ ESD Cleanroom Overshoes have non-marking conductive tape providing dissipative properties when worn as instructed

- KEY FEATURES**
- Non-marking conductive tape
  - ESD properties

BioClean™  
BBC  
Bouffant Cap



Material	Spunbond polypropylene
Size	Universal
Packaging	100 pieces per sealed inner PE bag; 10 inner bags per sealed outer PE bag; one outer bag per lined carton (1000 pieces)

- DESCRIPTION**
- The BioClean™ Bouffant Cap is lightweight and breathable and reduces the risk of contamination from the head area from entering the controlled environment

- KEY FEATURES**
- Lightweight
  - Latex-free elastic
  - White or Blue
  - Universal size



GOGGLES &  
FACEMASKS

STERILE & NON-STERILE

BioClean™ Clearview  
BCGS1

Single-Use Goggles



Material	Lightweight ultra-soft PVC frame, toughened polycarbonate lens, latex-free silicone head band
Size	Universal
Compatibility	ISO Class 4 & EU GMP Grade A
Packaging	One piece per sealed DuPont™ Tyvek® material/PE inner bag; 10 inner bags per sealed outer Tyvek®/PE bag; six outer bags per lined carton (60 pieces)

DESCRIPTION

- BioClean™ Clearview Sterile Single Use Goggles are constructed from lightweight ultra-soft PVC, and feature an indirect ventilation system to maintain user comfort and reduce the risk of contamination entering the controlled environment
- With PPE Cat 2 certification, they provide personal protection and can be worn over eye-glasses with ease and feature a toughened polycarbonate lens with anti-fog and anti-scratch coating for clear vision

KEY FEATURES

- Lightweight PVC frame
- Indirect ventilation system
- Optically correct
- Toughened polycarbonate, anti-fog & anti-scratch optically correct lens
- Non-linting latex-free head band
- EtO sterilized

CATEGORY II

PERFORMANCE RATINGS

- ANSI/ISEA Z87.1-2010
- EN166:2001

BioClean™ Clearview  
BVGS

Single-Use Goggles



Material	Lightweight ultra-soft PVC frame, toughened polycarbonate lens, latex-free silicone head band
Size	Universal
Compatibility	ISO Class 4 and EU GMP Grade A
Packaging	One piece per sealed PE inner bag; 10 inner bags per sealed outer PE bag; six outer bags per lined carton (60 pieces)

Please note: Style subject to a minimum order quantity (MOQ)

DESCRIPTION

- BioClean™ Clearview gamma irradiated Single Use Goggles are constructed from lightweight ultra-soft PVC, and have an indirect ventilation system to maintain user comfort and reduce the risk of contamination entering the controlled environment
- With PPE Cat 2 certification, they provide personal protection and can be worn over eye-glasses with ease and feature an optically correct toughened polycarbonate lens with anti-fog and anti-scratch coating for clear vision

KEY FEATURES

- Lightweight PVC frame
- Indirect ventilation system
- Optically correct
- Toughened polycarbonate, anti-fog & anti-scratch optically correct lens
- Non-linting latex-free head band
- Gamma sterilized

CATEGORY II

PERFORMANCE RATINGS

- ANSI/ISEA Z87.1-2010
- EN166:2001

BioClean™ Clearview  
BCAH

Autoclavable Goggles



Material	Silicone rubber frame, polycarbonate lens, latex-free silicone head band with polypropylene hooks
Size	Universal
Compatibility	ISO Class 4 & EU GMP Grade A
Packaging	One piece per sealed PE bag (to be removed prior to autoclaving); 12 bags per inner box; five boxes per lined carton (60 pieces)

DESCRIPTION

- Constructed from super-soft, lightweight silicone rubber to provide user comfort and enable prolonged use, BioClean™ Clearview Autoclavable Cleanroom Goggles feature an indirect ventilation system to reduce the risk of contamination entering the controlled environment, and have an anti-fog polycarbonate lens

KEY FEATURES

- Anti-fog lens
- Super-soft frame
- Indirect ventilation system
- Non-linting latex-free head band
- Tested to withstand 50 autoclave cycles of 30 minutes duration at 121°C/250°F (under laboratory conditions)
- Anti-fog performance remaining for up to 25 cycles with no signs of degradation (under laboratory conditions)

BioClean™ Clearview  
BCAG

Autoclavable Goggles



Material	Thermoplastic rubber frame, toughened polycarbonate lens, latex-free silicone head band with polypropylene hooks
Size	Universal
Compatibility	ISO Class 4 and EU GMP Grade A
Packaging	One piece per sealed PE bag (to be removed prior to autoclaving); 12 bags per inner box; five inner boxes per lined carton (60 pieces)

DESCRIPTION

- BioClean™ Clearview Autoclavable Cleanroom Goggles have a super-soft thermoplastic rubber frame to provide wearer comfort and feature upper vents and an indirect lower ventilation system to reduce the risk of contamination entering the controlled environment
- These goggles feature a toughened anti-scratch, anti-fog polycarbonate lens for clear vision

KEY FEATURES

- Toughened, anti-scratch, anti-fog lens
- Super-soft frame
- Upper vents and lower indirect ventilation system
- Non-linting latex-free head band
- Can be worn over eye-glasses
- Tested to withstand 40 autoclave cycles of 30 minutes duration at 121°C/250°F (under laboratory conditions)
- Anti-fog performance remaining for up to 25 cycles with no degradation (under laboratory conditions)

CATEGORY II

PERFORMANCE RATINGS

- EN166:2001

BioClean™ Clearview  
BCAP

Autoclavable Panoramic Goggles



Material	Thermoplastic rubber frame, toughened polycarbonate lens, latex-free silicone head band with polypropylene hooks
Size	Universal
Compatibility	ISO Class 4 & EU GMP Grade A
Packaging	One piece per sealed PE bag (to be removed prior to autoclaving); 12 bags per inner box; five boxes per lined carton (60 pieces)

DESCRIPTION

- BioClean™ Clearview Autoclavable Panoramic Goggles have a toughened, anti-scratch, anti-fog lens providing excellent optical clarity even after multiple autoclave cycles
- The goggles feature a super-soft frame for comfort and an indirect ventilation system to reduce the risk of contamination entering the controlled environment
- The extra wide and deep lens offers the wearer increased field of vision and are ideal for wearing over large eye-glasses

KEY FEATURES

- Toughened anti-scratch, anti-fog lens
- Super-soft frame
- Indirect ventilation system
- Ideal for wearing over eye-glasses
- Non-linting latex-free head band
- Tested to withstand 40 autoclave cycles of 30 minutes duration at 121°C/250°F (under laboratory conditions)
- Anti-fog performance remaining for up to 25 cycles with no degradation (under laboratory conditions)

CATEGORY II

PERFORMANCE RATINGS

- EN166:2001



BioClean™  
BDBS-G and BDBN-G

Pouch-style Facemask with Neck Guard



Material	<b>INNER FACING LAYER:</b> Non-woven spunbonded polyester (hygroscopic) <b>FILTER LAYER:</b> Meltblown polyester (Sterile), Meltblown polypropylene (non-sterile) <b>OUTER FACING LAYER:</b> Non-woven spunbonded polyester (hydrophobic) <b>FASTENINGS:</b> Tubular knitted polyurethane Spandex yarn headloops <b>NECK GUARD:</b> Non-woven spunbonded polyester <b>NOSE-BAND:</b> Plastic coated steel
Compatibility	ISO Class 4
Packaging	<b>BDBS-G:</b> Sterile; One piece per sealed inner PE bag; 20 inner bags per sealed outer PE bag; 10 outer bags per lined carton (200 pieces) <b>BDBN-G:</b> Non-sterile; 50 pieces per sealed inner PE bag; one inner bag per sealed outer PE bag; six outer bags per lined carton (300 pieces)

DESCRIPTION

- The BioClean™ DB Pouch-style Facemask features a large breathing chamber for increased wearer comfort
- Made from cleanroom compatible materials the BioClean™ DB facemask features an integrated neck guard to provide additional coverage reducing the risk of cross-contamination

KEY FEATURES

- High bacterial & particle filtration efficiency
- Extra long neck guard
- Large breathing chamber
- Ultrasonically sealed edges
- Fully enclosed malleable nose-band

BioClean™  
BDBS and BDBN

Pouch-style Facemask



Material	<b>INNER FACING LAYER:</b> Non-woven spunbonded polyester (hygroscopic) <b>FILTER LAYER:</b> Meltblown polyester (sterile), Meltblown polypropylene (non-sterile) <b>OUTER FACING LAYER:</b> Non-woven spunbonded polyester (hydrophobic) <b>FASTENINGS:</b> Tubular knitted polyurethane Spandex yarn headloops <b>NOSE-BAND:</b> Plastic coated steel
Compatibility	ISO Class 4
Packaging	<b>BDBS:</b> Sterile; One piece per sealed inner PE bag; 20 inner bags per sealed outer PE bag; 10 outer bags per lined carton (200 pieces) <b>BDBN:</b> Non-sterile; 50 pieces per sealed inner PE bag; one inner bag per sealed outer PE bag; six outer bags per lined carton (300 pieces)

DESCRIPTION

- The BioClean™ DB Pouch-style Facemask features a large breathing chamber for increased wearer comfort and a malleable nose-band for a good fit
- Made from cleanroom compatible materials and ultrasonically sealed edges to reduce the risk of contamination entering the controlled environment

KEY FEATURES

- High bacterial & particle filtration efficiency
- Large breathing chamber
- Ultrasonically sealed edges
- Fully enclosed malleable nose-band

BioClean™  
MTA

Tie-on Facemask



Material	<b>INNER FACING LAYER:</b> Non-woven polypropylene/ polyethylene (hygroscopic) <b>FILTER LAYER:</b> Meltblown polyester (sterile), Meltblown polypropylene (non-sterile) <b>OUTER FACING LAYER:</b> Non-woven spunbonded polyester (hydrophobic) (sterile), Non-woven polypropylene/ polyethylene (hydrophobic) (non-sterile) <b>FASTENINGS:</b> Non-woven polypropylene ties <b>NOSE-BAND:</b> Plastic coated steel
Compatibility	ISO Class 4
Packaging	<b>MTA210-1:</b> Sterile; One piece per sealed inner PE bag; 50 inner bags per sealed outer PE bag; 10 outer bags per lined carton (500 pieces) <b>MTA 210-0:</b> Non-sterile (bulk packed); 50 pieces per sealed inner PE bag; one inner bag per sealed outer PE bag; 16 outer bags per lined carton (800 pieces) <b>MTA 210-2:</b> Non-sterile; One piece per sealed inner PE bag; 50 inner bags per sealed outer PE bag; 10 outer bags per lined carton (500 pieces)

DESCRIPTION

- Providing high particle and bacterial filtration efficiency, the BioClean™ MTA Cleanroom Tie-on Facemask is manufactured from cleanroom compatible materials to reduce contamination into the controlled environment and features tie-tapes for a secure fastening

KEY FEATURES

- High bacterial, viral & particle efficiency filtration
- Fully enclosed malleable nose-band
- Ultrasonically sealed edges
- Tested against standard ASTM F2101 for Bacterial Filtration Efficiency (BFE)
- Latex-free

BioClean™  
MEA

Looped Facemask



Material	<b>INNER FACING LAYER:</b> Non-woven polypropylene/ polyethylene (hygroscopic) <b>FILTER LAYER:</b> Meltblown polyester (sterile), Meltblown polypropylene (non-sterile) <b>OUTER FACING LAYER:</b> Non-woven spunbonded polyester (hydrophobic) (sterile), Non-woven polypropylene/ polyethylene (hydrophobic) (non-sterile) <b>FASTENINGS:</b> Non-latex polyurethane loops with blue plastic clip fastener <b>NOSE-BAND:</b> Plastic coated steel
Compatibility	ISO Class 4
Packaging	<b>MEA210-1:</b> Sterile; One piece (with blue clip) per sealed inner PE bag; 50 inner bags per sealed outer PE bag; 12 outer bags per lined carton (600 pieces) <b>MEA210-0:</b> Non-sterile (bulk packed); 100 pieces per sealed inner PE bag; one inner bag per sealed outer PE bag; 20 outer bags per lined carton (2000 pieces) <b>MEA210-2:</b> Non-sterile; One piece per sealed inner PE bag; 50 inner bags per sealed outer PE bag; 12 outer bags per lined carton (600 pieces) Packing option subject to minimum order quantity and lead time

DESCRIPTION

- Providing high particle and bacterial filtration efficiency, the BioClean™ MEA Cleanroom Looped Facemask is manufactured from cleanroom compatible materials to reduce contamination into the controlled environment
- Features loops and clip connector to allow for quick and secure fastening at back of head

KEY FEATURES

- High bacterial, viral & particle efficiency filtration
- Fully enclosed malleable nose-band
- Ultrasonically sealed edges
- Looped with connector for secure fastening
- Tested against standard ASTM F2101 for Bacterial Filtration Efficiency (BFE)



BioClean™  
BFV05  
Face Veil with Headloops



Material	<b>VEIL:</b> Apertured polyethylene film <b>FASTENINGS:</b> Tubular polyester headloops <b>NOSE-BAND:</b> Plastic coated aluminum <b>BINDING:</b> White hydroentangled polyester
Compatibility	ISO Class 7, 8 & 9
Packaging	100 pieces per sealed inner PE bag; one inner bag per sealed outer PE bag; 10 outer bags per lined carton (1000 pieces)

**DESCRIPTION**

- BioClean™ Microflow Cleanroom Face Veil is low-linting with ultrasonically sealed edges reducing the risk of contamination into the controlled environment, and features a fully enclosed malleable nose-band and head-loops for a good fit

- KEY FEATURES**
- Ultrasonically sealed seams
  - Fully enclosed malleable nose-band
  - Low-linting

BioClean™  
BFV06  
Face Veil with Studs



Material	<b>VEIL:</b> Apertured polyethylene film <b>FASTENINGS:</b> Two male studs either side of veil <b>NOSE-BAND:</b> Plastic coated aluminum <b>BINDING:</b> White hydroentangled polyester
Compatibility	ISO Class 7, 8 & 9
Packaging	50 pieces per sealed inner PE bag; one inner bag per sealed outer PE bag; 10 outer bags per lined carton (500 pieces)

**DESCRIPTION**

- BioClean™ Microflow Cleanroom Face Veil features ultrasonically sealed edges reducing the risk of contamination into the controlled environment, and features a fully enclosed malleable nose-band for a good fit and studs for a secure fastening to hood

- KEY FEATURES**
- Studs either side for attaching to cleanroom hoods
  - Ultrasonically sealed seams
  - Fully enclosed malleable nose-band
  - Low-linting







# WHY ANSELL?

[www.ansell.com](http://www.ansell.com)



## A WORLD LEADER IN PERSONAL PROTECTION SOLUTIONS

This is how our business works: an overview of Ansell's global sales, products and supply chain infrastructure.



**No. 1 or 2 position**  
in all key segments globally



Provide protection solutions to  
**more than 25 specific industries**



Sell **10 billion+ gloves**  
per year



Average medical professional personally  
wears nearly **1,200 pairs of Ansell gloves**  
per year



Protect more than  
**10 million workers** each day

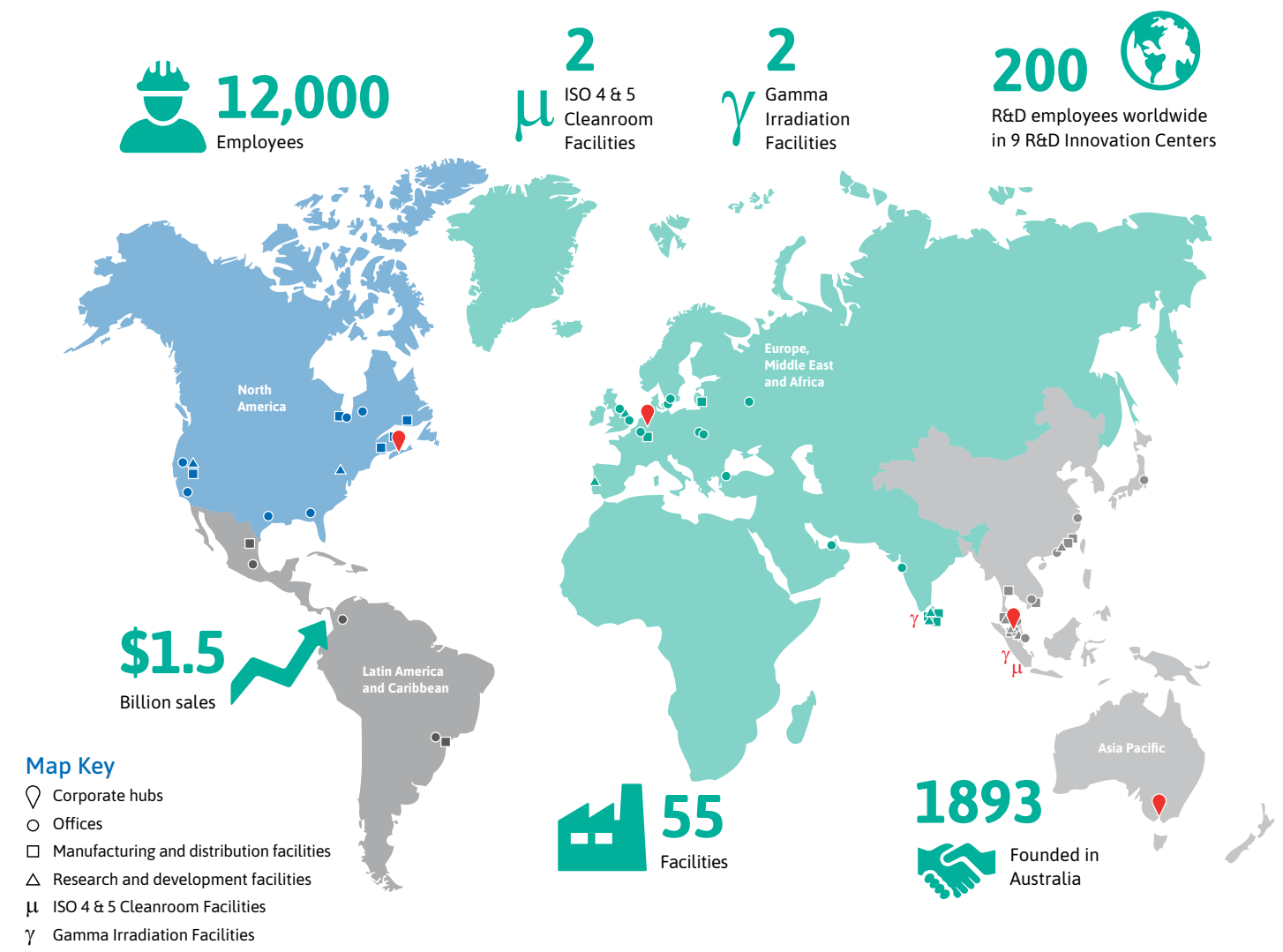


Over **100 new product**  
launches in the last 2 years

### Dedicated to safety

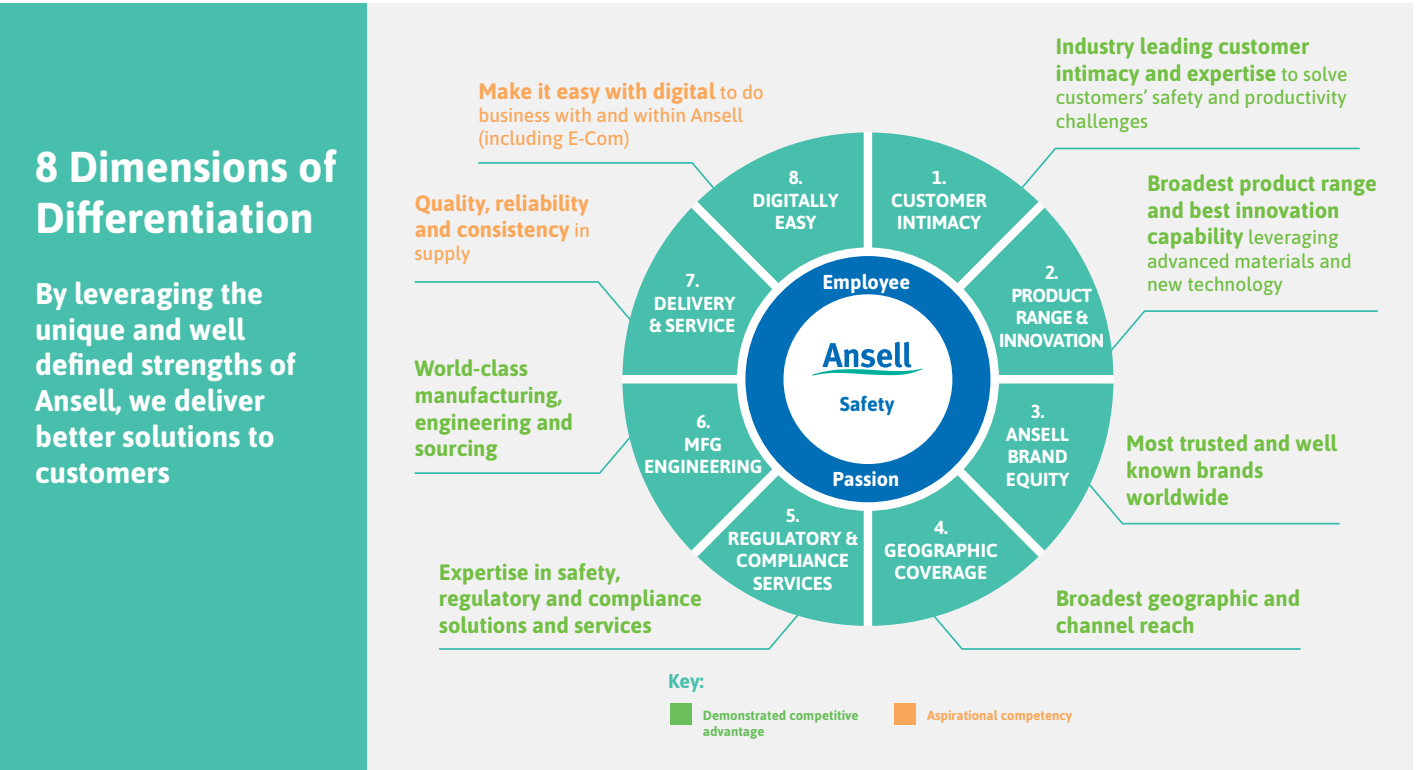
Ansell has been protecting people for over 125 years. We have created specialized teams to focus on the personal protection needs of workers in many industries. Our employees are dedicated to developing solutions that are based on the hazardous conditions that workers face on the job every day.

**Ansell is dedicated to worker safety:** we provide a comprehensive range of gloves and clothing to meet all worker and product protection requirements.



WHY ANSELL?

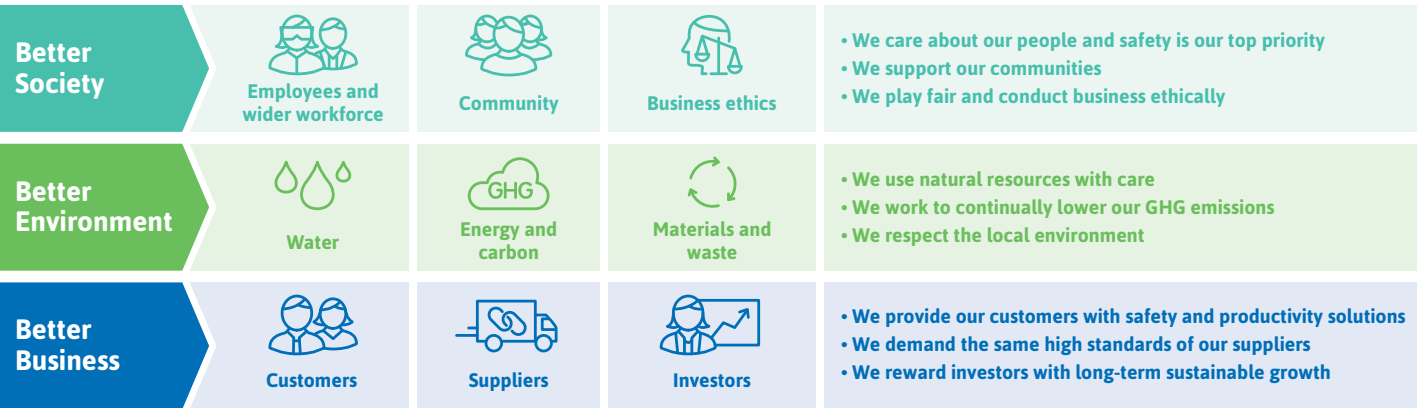
We are innovators striving to create advanced solutions and technology that will solve the problems of workers, creating a safer and more protected world. Our vision is of a world where people enjoy optimal protection against the risks they are exposed to. Whether at work or outside the workplace, people require the right protection for the right situation. After all, what better guarantee is there of increased safety, security and productivity than adequate protection?



OUR RESPONSIBLE AND RESPONSIVE STRATEGY & PURPOSE

Our Responsible and Responsive Strategy & Purpose illustrates how we are connecting care for the interests of all stakeholders to our business strategy.

Over the past several years, Ansell has transformed the ways in which we incorporate sustainability into our business practices, and we will continue to advance further in this area in the years ahead.



ANSELL BRANDS

Our Life Sciences portfolio is composed of three core brands: BioClean™, MICROFLEX® and TouchNTuff®. Product offerings are comprised of versatile hand, arm and body protection solutions that provide superior comfort, performance and protection, no matter what industry or application. Consult our product index to view all products classified by brands (p. 4).

Brand	Category	Positioning	Features and benefits
	Single use hand, body & face protection	<p>BioClean™ gloves and garments offer the largest range of products that provide head-to-toe protection for the Life Sciences segment.</p> <p>They provide a range of protection solutions, from gloves to goggles to garments, for worker protection in controlled environments.</p>	<ul style="list-style-type: none"><li>• Wide range of glove polymers processed and packed clean and available sterile or non-sterile</li><li>• A number of gloves and garment materials tested against chemotherapy drugs for superior chemical protection</li><li>• Face protection solutions for non-critical and critical environments</li><li>• Extensive cleanroom essentials accessories range including bags, equipment covers, pens and paper</li><li>• Anti-fog autoclavable and single use goggle range</li></ul>
	Single use hand protection	<p>MICROFLEX® disposable gloves go beyond protection to take worker comfort, performance and productivity to new levels through proprietary technologies that deliver improved grip, enhanced chemical resistance and ergonomic designs for a superior fit.</p>	<ul style="list-style-type: none"><li>• Increased barrier integrity (0.65 AQL on many styles)</li><li>• Enhanced strength and durability</li><li>• Dual certification (EN 455 Medical and PPE) on many gloves</li><li>• Wide polymer selection</li><li>• Range of colors and sizes</li></ul>
	Single use hand protection	<p>TouchNTuff® disposable gloves provide superior tactility and resilience for work in industrial, lab and controlled environments.</p>	<ul style="list-style-type: none"><li>• Enhanced chemical splash protection</li><li>• Broad clean/sterile offering</li><li>• Silicone-free construction</li><li>• Wide polymer selection</li></ul>




WORKER EXPERIENCE INNOVATION TECHNOLOGIES



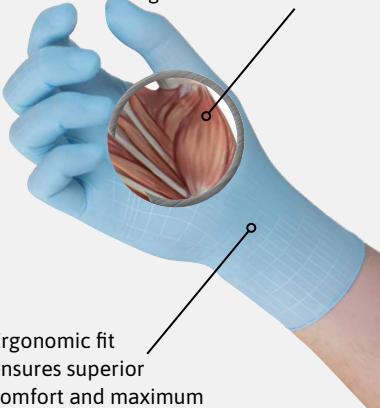
Over the years, Ansell has pioneered many innovations in glove design that have become industry standards. Transforming global insights about end user needs into technology-based solutions that enhance workers’ comfort, performance and protection is the hallmark of our innovation.

Comfort technologies



**ERGOFORM™**  
Ergonomic Design Technology


ERGOFORM™ Technology enables Ansell to design safety solutions that support musculoskeletal health during repetitive tasks to improve worker performance.



Our design reduces stress on joints, ligaments and tendons

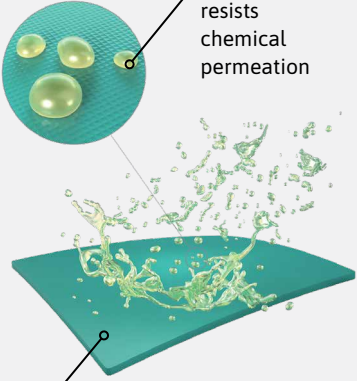
Ergonomic fit ensures superior comfort and maximum range of motion

Protection technologies



**TNT™**  
Chemical Splash Resistance Technology


TNT™ Technology is a proprietary polymer formulation that provides superior splash resistance against a wide range of hazardous chemicals, for durable protection with a soft, comfortable feel.



Actively resists chemical permeation

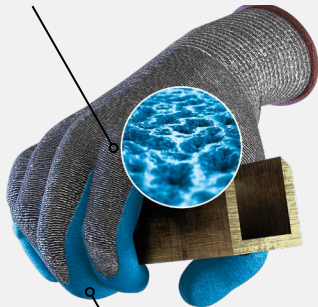
Proprietary nitrile formulation protects against a broad range of chemicals

Performance technologies



**ANSELL GRIP™**  
Ansell Grip Technology

ANSELL GRIP™ Technology is a coating treatment that minimizes the force required to grip dry, oily and wet tools or materials, reducing hand and arm fatigue while improving dexterity, safety and productivity.



Contoured coating treatment

Safe handling of tools and materials

➤ For more information on WORKER EXPERIENCE INNOVATION, please visit [www.ansell.com/wee-technologies](http://www.ansell.com/wee-technologies)

Ansell**GUARDIAN®**

FOCUS ON SAFETY TO IMPROVE YOUR BUSINESS PERFORMANCE

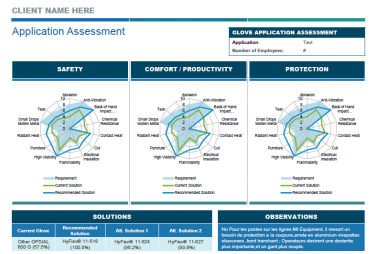
Ansell**GUARDIAN®** is our proprietary service to help companies select the right personal protective equipment solution to improve their safety, productivity and cost performance.

An integrated approach

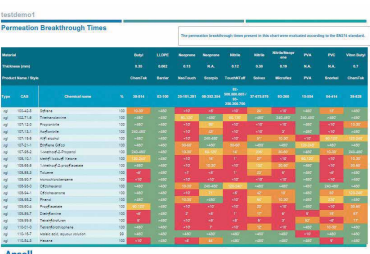
Ansell**GUARDIAN®** partners with industrial and medical organizations to address the challenges in today’s PPE environment and deliver measurable safety and business improvements.

Safety/compliance

Personalized risk management solutions (industrial and chemical) and data-driven recommendations



CLIENT NAME HERE  
Application Assessment

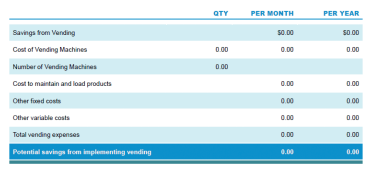


CLIENT NAME HERE  
Permeation Breakthrough Times

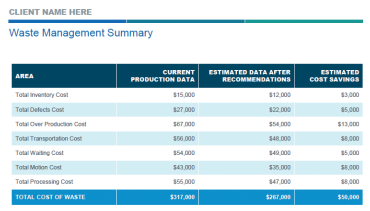
Increased safety and compliance

Productivity

Best practice recommendations to optimize PPE dispensing, improve output and eliminate waste



CLIENT NAME HERE  
Vending Implementation




CLIENT NAME HERE  
Waste Management Summary

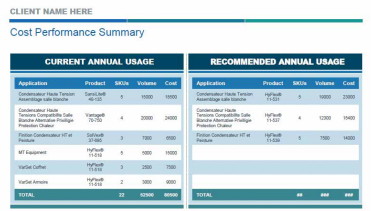
Improved productivity

Costs

Business performance improvement/implementation across 7 cost drivers that measure financial progress



CLIENT NAME HERE  
Key Findings (Summary)



CLIENT NAME HERE  
Cost Performance Summary

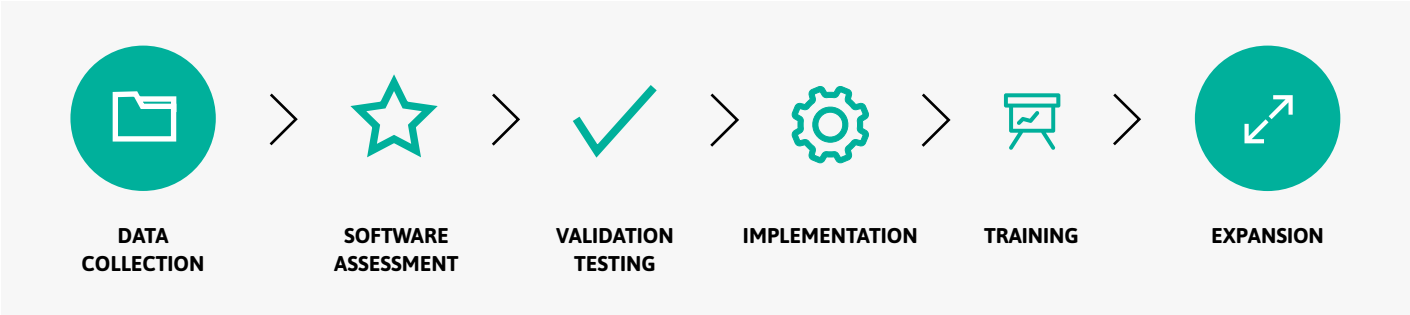
Lower costs

62

63

WHAT’S THE PROCESS?

By focusing on the most relevant areas, AnsellGUARDIAN® can deliver best practice recommendations with the most impact for our customers’ businesses. Our solutions can be implemented within a single application or entire site, locally or globally. We have the capability to consolidate data around different sites.



Proof points

**Experience:** More than 15,000 assessments conducted since 2010.

**Results:** Since it’s launch in July 2014, AnsellGUARDIAN® recommendations have resulted in injury reductions on an average of 65%, customers have decreased product styles by an average of 25%, and we have saved companies a total of \$148 million, a \$65,000 average.

**Global:** We operate in more than 55 countries.

**Technology:** Industry pioneer with the most advanced and proprietary technology and analytics.

Our operating principles

**Partnership:** While supplying safety solutions, we share our expertise to analyze, benchmark, implement and improve PPE-related operations and performance.

**Adaptation:** No matter what business, industry or application, we tailor and adapt solutions based on data-driven analytics.

**Transformation:** Full implementation of our recommendations to ensure the success of PPE change management initiatives.

### Safety and Compliance

AnsellGUARDIAN® helps our customers to improve worker safety and ensure compliance with safety regulations among the workforce.

Reduced injuries by 65%\*

Reduced 6,400 major recordable injuries\*

Reduced 9,200 first-aid injuries\*

### Productivity

AnsellGUARDIAN® helps our customers to find the right PPE solution that allows for increased efficiency, better performance and improved productivity.

Decreased 2,100 references\*

Decreased product styles by 25%\*

Decreased SKUs by 10%\*

### Costs

AnsellGUARDIAN® helps our customers to reduce injuries and follow-up costs, thus optimizing your cost performance.

24% cost decrease by standardization\*

\$6.24 million savings in injury reduction\*

\$148 million total savings\*

\* Data based upon AnsellGUARDIAN® global surveys since 2014. Final results may vary  
Source: AnsellGUARDIAN® global surveys database since 2014.

➤ For more information on AnsellGUARDIAN®, please visit [www.ansell.com/services](http://www.ansell.com/services)

CHEMICAL GLOVE AND SUIT SELECTION SIMPLIFIED

AnsellGUARDIAN® Chemical simplifies the glove and suit selection process for your unique set of chemicals.



How AnsellGUARDIAN® Chemical works

AnsellGUARDIAN® Chemical evaluates the resistance of glove and suit materials against your chemicals to offer a risk assessment with expected permeation breakthrough times. This assessment can either be carried out during a personal consultation with one of our AnsellGUARDIAN® specialists or online by using our chemical permeation database. As a result, selecting the right chemical glove and suit has never been easier.

CAS	Chemical Name	%
1336-21-6	Ammonium hydroxide	25
64-17-5	Ethyl alcohol	70
50-00-0	Formaldehyde	37
67-63-0	Isopropanol	70
67-56-1	Methyl alcohol	100
1310-73-2	Sodium Hydroxide	40

Ansell GUARDIAN® Chemical

Material	Neoprene	Nitrile	Nitrile	Nitrile	Nitrile/Neoprene	Polyisoprene			
Thickness (mm)	0.175	0.12	0.12	0.12	0.16	0.21			
Product Name / Style	DermaShield	MICROFLEX®	Nitrile	TouchNTuff®	MICROFLEX®	TouchNTuff®			
Type	CAS	Chemical name	%	73-701,711,721	93-859	93-401	92-500,600,605 / 93-259,300,700	93-240,360	83-300,500
sgl	1336-21-6	Ammonium hydroxide	25	25	10-30	7	25	51	<10
sgl	64-17-5	Ethyl alcohol	70	44	30-60	31	27	120-240	9
sgl	50-00-0	Formaldehyde	37	>480	>480	>480	>480	>480	>480
sgl	67-63-0	Isopropanol	70	240-480	240-480	120-240	175	240-480	<10
sgl	67-56-1	Methyl alcohol	100	18	6	45	4	22	<10
sgl	1310-73-2	Sodium Hydroxide	40	>480	>480	>480	>480	>480	>480

Material safety data sheet (MSDS)

Software assessment

Evaluation

Simplification

YOUR BENEFITS

Safety

Performance

Compliance

An optimal solution for selecting the right chemical glove and suit

- Estimated permeation breakthrough times for both single and mixed chemicals
- Confidence that goes with knowing you are always selecting the right chemical product
- A comprehensive range of gloves and suits to cover workers’ needs across different industries and applications
- Global sales, business support and availability of technical documentation

➤ For more information on AnsellGUARDIAN®, please visit [www.ansell.com/services](http://www.ansell.com/services)



ANSELLGUARDIAN® PERSONALIZED CHEMICAL ASSESSMENT ANYTIME

AnsellGUARDIAN® Chemical evaluates the resistance of glove and suit materials with your chemicals to offer a personalized assessment with expected permeation breakthrough times. The AnsellGUARDIAN® Chemical database contains over 7,000 single chemicals and 17,500 mixed chemicals. Over the past four years, our chemical experts have conducted over 20,000\* assessments.

Gloves

Material				Neoprene	Nitrile	Nitrile	Nitrile	Nitrile/Neoprene	Polyisoprene
Thickness (mm)				0.175	0.12	0.12	0.12	0.19	0.21
Product Name / Style				DermaShield	MICROFLEX®	Nitrilite	TouchNTuff®	MICROFLEX®	TouchNTuff®
Type	CAS	Chemical name	%	73-701.711.721	93-850	93-401	92-500.600.605 / 93-250.300.700	93-260.360	83-300.500
sgl	1336-21-6	Ammonium hydroxide	25	26'	10-30'	7'	29'	51'	<10'
sgl	64-17-5	Ethyl alcohol	70	44'	30-60'	31'	27'	120-240'	5'
sgl	50-00-0	Formaldehyde	37	>480'	>480'	>480'	>480'	>480'	>480'
sgl	67-63-0	Isopropanol	70	240-480'	240-480'	120-240'	178'	240-480'	<10'
sgl	67-56-1	Methyl alcohol	100	18'	6'	<5'	1'	22'	<10'
sgl	1310-73-2	Sodium Hydroxide	40	>480'	>480'	>480'	>480'	>480'	>480'

Permeation Breakthrough Times (min)		
<10	Not Recommended	
10-30	Splash Protection	
30-60	Splash Protection	
60-120	Medium Protection	
120-240	Medium Protection	
240-480	Good Protection	
480	Good Protection	

Permeation breakthrough times-BT<sub>10</sub>

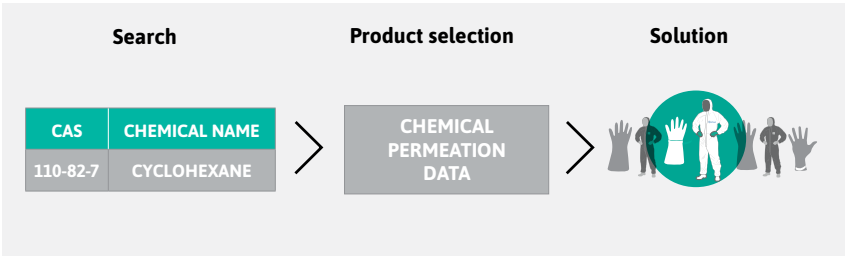
The BT<sub>10</sub> is the time taken (in minutes) for the chemical in question to be permeating through the material at a rate of 1.0 µg cm<sup>-2</sup> min<sup>-1</sup>. This can be determined using any of the following standard test methods: EN 374-3 and ISO 6529. It is commonly utilized mainly within the regions concerned with the EN and ISO standards.

Disclaimer: Permeation breakthrough times evaluate the time necessary for a chemical to pass through a glove or suit material. Recommendations are based on extrapolations from laboratory test results and information regarding the composition of chemicals and may not adequately represent specific conditions of end use. Synergistic effects of mixing chemicals have not been accounted for. For these reasons, and because Ansell has no detailed knowledge of or control over the conditions of end use, any recommendation must be advisory only and Ansell fully disclaims any liability including warranties related to any statement contained herein.

DIGITAL SOLUTION

Powerful digital tool allows easy access to chemical permeation data for hazardous substances, including ASTM, EN and ISO standardized lists of challenge chemicals.

Our digital solution is designed to simplify the selection of Ansell hand and body protection solutions. This tool offers an instant visual evaluation and an easy-to-use search functionality including the unique Chemical Abstracts Service (CAS) number system. For specific chemical protection challenges, an expert assessment is also available to provide a simplified set of choices, drawn from our broad portfolio of chemical protection solutions.



\* Source: AnsellGUARDIAN chemical database since 2014.

➤ For up-to-the-minute chemical permeation data, please visit: [www.ansellguardianpartner.com](http://www.ansellguardianpartner.com) (hand protection) [www.ansell.com/permeation](http://www.ansell.com/permeation) (body protection)



RESOURCES

COMPLYING WITH NEW PERSONAL PROTECTIVE EQUIPMENT REGULATION

In February 2016, the European Council and European Parliament amended and approved a new PPE Regulation proposed by the European Commission. Regulation 2016/425 came into effect on 21<sup>st</sup> April 2018 with a one year transition phase, replacing Directive 89/686/EEC.

The new regulation will apply to private use as protection against heat (e.g., oven gloves) and to distributors selling PPE products. It provides additional conformity assessment requirements, such as the need for an internal production control system and valid type examination certificates for a maximum of 5 years. The regulation also provides specific requirements for every economic operator involved in the supply chain, as well as additional documentation requirements linked to the instructions for use and conformity declarations.

The new PPE regulation now specifies three categories based on risk definitions.



Category I

Minimal risk

For PPE of simple design offering protection from low-level risks, (e.g., janitorial gloves) manufacturers are permitted to test and certify PPE themselves.

Category II

Risks other than those listed in Categories I and III

PPE designed to protect against intermediate risk (e.g., Goggles & general handling gloves which require cut, puncture, and abrasion protection) must be subjected to independent testing and certification by a notified body. Only these approved bodies may issue a CE mark. Without a proper CE mark, the PPE may not be sold or used. Each notified body has its own identification number. The name and address of the notified body that certifies the product must appear on the instructions for use that will accompany the PPE.



Category III

Very serious risks, which may cause death or irreversible damage to health

PPE designed to protect against the highest levels of risk (e.g., chemicals, biological agents, electric shock and live working) must also be tested and certified by a notified body. In addition, the quality assurance system used by the manufacturer to guarantee homogeneity of production must be independently checked. The body carrying out this evaluation must also appear on the instructions for use and be identified by a number that appears alongside the CE mark. In this example, the number 0493 represents Centexbel and 0598 represents SGS Fimko Oy.

COMPLYING WITH OTHER REGULATIONS

Ansell and REACH

All Ansell products fully comply with the legal requirements of REACH and its amendments. We ensure the pre-registration of all required chemicals used in our products and are actively looking for ways to replace SVHC chemicals subject to regulation, prior to their restriction or ban.

The Ansell REACH statement can be found on our website and more information is available through the Ansell customer service or regulatory department.

Authorised Economic Operator (AEO) certification

Ansell Healthcare Europe has been granted AEO as the company is demonstrating the standards for customs compliance, appropriate recordkeeping, financial solvency and, where relevant, appropriate security and safety standards.

This certification identifies Ansell as a reliable partner in all our dealings with other companies, but more particularly with customs locally and abroad, speeding up our supply chain with less controls, making it safer as more companies prioritize on inspections and permit requests as well as mutual recognition with C-TPAT, the US' Customs-Trade Partnership Against Terrorism.

PPE REGULATION (EU) 2016/425

The new PPE Regulation (EU) 2016/425 aligns the interests and formalizes the requirements of stakeholders across the PPE industry.

The Regulation brings product developers and manufacturers, distributors and importers, and testers and certifiers into a community of professionals who are now collectively—and legally—responsible for ensuring the safety of PPE products.



ECONOMICAL OPERATOR  
Manufacturer

Directive 89/686/EEC Before April 21 <sup>st</sup> 2019	Regulation (EU) 2016/425 As of April 21 <sup>st</sup> 2019
Responsibilities	Responsibilities/Changes:
<p>Under the Directive, the manufacturer needed to ensure the products get certified, including:</p> <p>Not making PPE available in the market if the PPE is considered unable to meet the essential health and safety requirements</p> <p>Ensure the CE mark, the correct markings/claims, the IfU and the EU Declaration of Conformity “EU DoC” is available</p>	<ul style="list-style-type: none"><li>• Ensure that the PPE is safe for the intended purpose and compliant</li><li>• Have procedures in place for series production to remain in conformity with the PPE Regulation</li><li>• Take corrective actions in case of non-compliance and inform the competent authorities where PPE presents a risk</li><li>• Cooperate with authorities in a language which can be easily understood by that authority</li><li>• Indicate on the PPE or packaging their name and single point postal address</li><li>• Ensure PPE bears a type, batch or serial number □□MMYYYY</li><li>• Carry out the conformity assessment, apply the CE mark and draw up the EU declaration of conformity “EU DoC”</li><li>• Keep technical file + EU DoC available for 10 years after PPE is placed on the market</li><li>• Ensure the PPE is accompanied with the Instructions for Use “IfU” and provide the EU DoC with the PPE or add the internet address to the IfU where the EU DoC can be accessed</li><li>• Inform the competent authorities where PPE presents a risk</li><li>• Where needed, carry out sample testing</li><li>• Ensure that transport and storage does not jeopardize the PPE’s conformity</li></ul>



ECONOMICAL OPERATOR  
Importer

Directive 89/686/EEC Before April 21 <sup>st</sup> 2019	Regulation (EU) 2016/425 As of April 21 <sup>st</sup> 2019
Responsibilities:	Responsibilities/Changes:
<p>No requirements defined</p>	<ul style="list-style-type: none"><li>• Place only compliant PPE on the market</li><li>• Inform the competent authorities where PPE presents a risk</li><li>• Cooperate with authorities in a language which can be easily understood by that authority</li><li>• Not making PPE available in the market if the PPE is considered not to meet the essential health and safety requirements and, where needed, carry out sample testing</li><li>• Ensure that transport and storage does not jeopardize the PPE’s conformity</li><li>• Indicate on the PPE or packaging their name and postal address (if manufacturer is outside EU)</li><li>• Shall ensure the conformity assessment is carried out, the CE mark, the correct markings/claims and the EU declaration of conformity “EU DoC” is available</li><li>• Shall ensure the PPE is accompanied with the Instructions for Use “IfU”</li></ul>











ECONOMICAL OPERATOR  
Distributor

Directive 89/686/EEC Before April 21 <sup>st</sup> 2019	Regulation (EU) 2016/425 As of April 21 <sup>st</sup> 2019
Responsibilities:	Responsibilities/Changes:
<p>No requirements defined</p>	<ul style="list-style-type: none"><li>• Act with due care and verify that the PPE bears the correct markings and is accompanied by the required documents in a language that can be easily understood by the consumers</li><li>• Not make PPE available in the market if the PPE is considered not to meet the essential health and safety requirements</li><li>• Ensure that transport and storage does not jeopardize the PPE’s conformity</li><li>• Take corrective actions in case PPE is considered to be non-compliant and inform the competent authorities in case PPE presents a risk, hence the “traceability requirement”</li><li>• Cooperate with authorities and provide all the information necessary to demonstrate compliance</li><li>• Become responsible if they make alterations to incoming products</li></ul>





GUIDE TO EUROPEAN STANDARDS FOR PROTECTIVE GLOVES AND SLEEVES

Ansell gloves and sleeves sold in Europe are being certified as per European Union’s Personal Protective Regulation (EU 2016/425) and relevant state of the art EN standards, as also explained in this section.

EN ISO 374 – Chemical protection and/or protection against micro-organisms This standard specifies the capability of gloves to protect the user against chemicals and/or micro-organisms.								
Micro-organisms								
	Performance levels	1	2	3				
 EN 374:2003 EN LEVEL ≥ 2	<b>OLD:</b> AQL (Acceptable Quality Level) for liquid penetration. A high index number is poor and a low index number is good. Gloves need to pass water and air leak test, and this test method remains unchanged as per the new EN ISO 374 standard.	4.0	1.5	0.65				
 EN ISO 374-5:2016	<b>NEW:</b> Testing for protection against bacteria and fungi.							
 EN ISO 374-5:2016 VIRUS	<b>NEW:</b> In addition to testing for protection from bacteria and fungi, each glove can be tested for its protection against viruses with a new viral penetration test. AQL requirement has been taken out of the new EN ISO 374-5:2016.							
Chemical protection								
 EN 374:2003 XYZ	<b>OLD:</b> Breakthrough time 30 minutes for at least three chemicals from this list (XYZ represent the code letters for three of these chemicals for which the glove obtained 30 minutes breakthrough time).	<div>A. Methanol B. Acetone C. Acetonitrile D. Dichloromethane E. Carbon disulphide F. Toluene G. Diethylamine H. Tetrahydrofurane I. Ethyl acetate J. n-Heptane K. Sodium hydroxide 40% L. Sulphuric acid 96%</div>			<div><b>Additional chemicals</b> M. Nitric acid 65% N. Acetic acid 99% O. Ammonium hydroxide 25% P. Hydrogen peroxide 30% S. Hydrofluoric acid 40% T. Formaldehyde 37%</div>			
 EN ISO 374-1:2016 Type C	<b>NEW:</b> <b>TYPE C:</b> At least Level 1 performance (more than 10 minutes) against at least one chemical on the list – cuffs are also tested.*							
 EN ISO 374-1:2016 Type B XYZ	<b>NEW:</b> <b>TYPE B:</b> At least Level 2 performance (more than 30 minutes) against at least three chemicals on the list – cuffs are also tested.*							
 EN ISO 374-1:2016 Type A UVW XYZ	<b>NEW:</b> <b>TYPE A:</b> At least Level 2 performance (more than 30 minutes) against at least six chemicals on the list – cuffs are also tested.*							
Performance level		0	1	2	3	4	5	6
Minutes		< 10	10-30	30-60	60-120	120-240	240-480	> 480
	The beaker icon (low chemical resistance/waterproof) has been eliminated.							


\* Only if the glove is more than or equal to 400 mm

EN 388 – Mechanical protection							
This standard applies to all kinds of protective gloves in respect of physical and mechanical aggressions caused by abrasion, blade cut, puncture and tearing.							
Performance level rating		1	2	3	4	5	
 EN 388:2003 abcd	a Abrasion Resistance (Cycles)	100	500	2000	8000	–	
	b Blade Cut Resistance (Coupe Test/Index)	1.2	2.5	5.0	10.0	20.0	
	c Tear Resistance (Newtons)	10	25	50	75	–	
	d Puncture Resistance (Newtons)	20	60	100	150	–	
Expanded performance level rating according to EN 388:2016 (a–f)		A	B	C	D	E	F
 EN 388:2016 abcdef	e EN ISO Cut Resistance (Newtons)	2	5	10	15	22	30
	f EN Impact Protection	PASS or FAIL					


Note: Level ‚X‘ can also be applied for ‚A‘ through ‚E‘ above, which means not tested or not applicable


EN 388:2016: main changes from the previous EN 388:2003 standard

1. ABRASION  
New abrasion paper used in testing.
2. CUT  
New procedure for Coupe Test which also determines if dulling occurs. If dulling occurs, the new EN ISO 13977 test method (EN ISO Cut Resistance) becomes the reference whilst the Coupe Test would only be indicative.
3. IMPACT  
Test method for areas claiming impact protection. P for pass whilst no code will apply in case of fail.

EN 420 – General requirements	
	This pictogram indicates that the user has to consult the ‘instructions for use’.

Note: The CE marking is a mandatory conformity mark, certifying that a product has met the European Union’s safety requirements. The initials CE do not stand for any specific words.





EN 421 – Radioactive contamination and ionizing radiation	
 EN 421:2010	Gloves protecting from particulate radioactive contamination.

EC Regulation No 1935/2004 – Materials & articles intended to come into contact with food and repealing Directives 80/590/EEC and 89/109/EEC	
	<div>1. Materials and articles, including active and intelligent materials and articles, shall be manufactured in compliance with good manufacturing practice so that, under normal or foreseeable conditions of use, they do not transfer their constituents to food in quantities which could: <div>a) endanger human health; or b) bring about an unacceptable change in the composition of the food; or c) bring about a deterioration in the organoleptic characteristics thereof.</div></div>

GUIDE TO EUROPEAN STANDARDS FOR CHEMICAL PROTECTIVE CLOTHING

To assist you with the selection of appropriate protection solutions based on the exposure risk, the EU developed Type classification of chemical protective clothing (CPC).

Certification of a particular type offers an indication of your suit’s protection against a particular hazard (gas, liquid or dust). As a manufacturer, it is our responsibility to ensure that Ansell meets the requirements of these standards, where applicable. Please be aware that conformance to these type standards does not mean that your suit is 100% impervious to your hazard. Under these tests, suits are only required to meet the minimum performance requirements specified. In the case of the Type 5 particulate test, for example, suits are allowed individual leakages of up to 30%, providing the average for the suits tested is less than 15%. Ansell manufactures products according to ISO 9001, thus ensuring as far as is reasonably possible they consistently achieve the desired protection level.

Current European types of chemical protective clothing		
Symbol*	EN “Types”	Definition
<div>EN 13982-1:2004 + A1:2010</div> <div></div> <div>TYPE 5</div>	<b>EN ISO 13982-1:2004+A1:2010</b> Type 5	<b>Dry-particulate protection</b> Suits which provide protection to the full body against airborne solid particulates
<div>EN 13034:2005 + A1:2009</div> <div></div> <div>TYPE 6</div>	<b>EN ISO 13034:2005+A1:2009</b> Type 6	<b>Reduced-spray suits</b> Suits which offer limited protection against a light spray of liquid chemicals
<div>EN 13034:2005 + A1:2009</div> <div></div> <div>TYPE PB[6]</div>	<b>EN 13034:2005+A1:2009</b> Type 6[PB]	<b>Partial body protection garments i.e. sleeve covers</b> Offering limited protection against a light spray of liquid chemicals.
<div></div> <div>EN 1149-5</div>	<b>EN 1149-5</b>	<b>Protective clothing with electrostatic properties**</b>

**Disclaimer:** Ansell garments are available for most applications. However, please note that a detailed assessment of the nature of the hazard and the working environment should be undertaken prior to the selection of appropriate PPE. Ansell provides the information in this product catalog to assist you with selecting the correct product, but responsibility for the correct choice of PPE remains with the user.

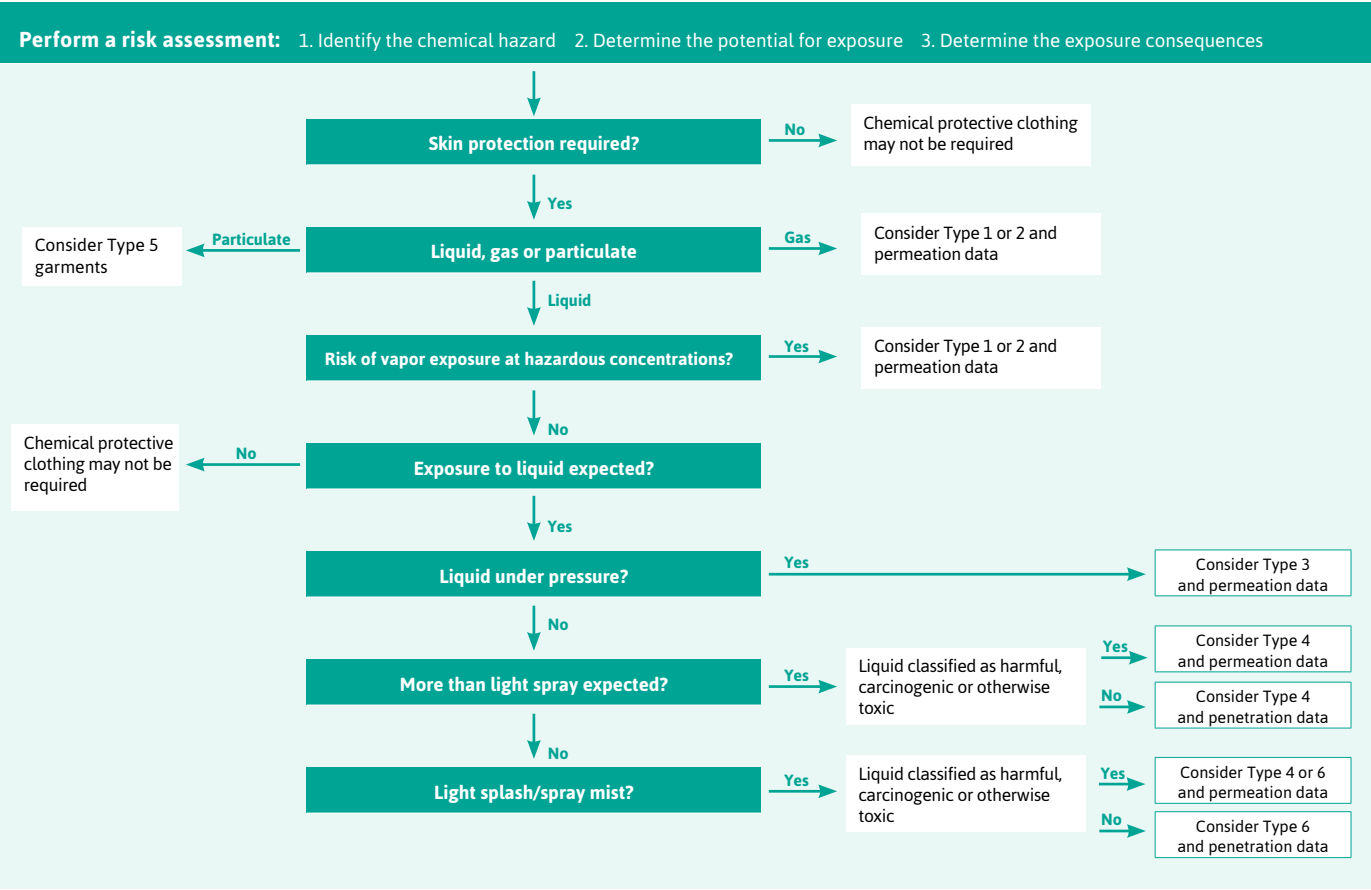
\* Type approvals do not necessarily apply to accessories. Always refer to the garment label and instructions-for-use document which will indicate the protection level offered.

\*\* Always ensure the garment and wearer are properly grounded.

SELECTING THE CORRECT CHEMICAL PROTECTIVE CLOTHING

Ansell has devised this simple flowchart as a basic tool to assist users and health and safety managers in selecting the correct type of chemical protective clothing.

It is important that the suitability of protective clothing for a particular use is determined by a trained expert in occupational health and safety. Many chemicals can cause serious and permanent injury to an unprotected or improperly protected user. Therefore, special emphasis has to be placed on the careful selection of chemical protective clothing when the potential for exposure to such chemicals has been identified.



Factors to consider

Advice on the suitability of chemical protective clothing for a task is very often based on reported permeation breakthrough times. The standard test methods used for measuring the breakthrough time (i.e. EN 16523, ISO 6529, ASTM F 739) are often regarded as representing the “worst-case scenario”, since the chemical is held in direct contact with the barrier material. Intermittent contact or splashes of the chemical, in real life, may in fact lengthen the breakthrough time. Also, laboratory-generated chemical permeation data may not always reflect conditions in the workplace. Temperature, pressure, flexing etc. could all potentially have an impact on the breakthrough time. When choosing chemical protective clothing, consideration has to be given to permeation and penetration, and the physical performance attributes of the product (abrasion, tear, tensile, strength etc.). Other physical properties to consider are the strength of seams and closures (i.e. zips) as well as flexibility, weight and comfort factors (i.e. thermal insulation, breathability etc.). The best chemically resistant material will be ineffective if torn, cut, punctured or otherwise damaged.




**Important note:** This guide is simplified and as such the suitability of chemical protective clothing for a particular use should only be determined by a trained expert in occupational health and safety. It is the responsibility of the user to assess the types of hazards and the risks associated with exposure and to verify the information provided for the product to make a final decision on the appropriate personal protective equipment needed for their specific circumstance.



FINDING THE RIGHT CHEMICAL PROTECTION SOLUTION

By following our step-by-step guideline, you can easily identify the right suit for your chemical task.

1. Identify the "primary" exposure hazard(s)

Chemical(s)	Particulate contamination	Biological/infective agents
		
• Gas/vapor • Liquids • Solids • Pure or mixtures	• Airborne • Radioactive particulates	• Blood-borne • Airborne/solid

2. Determine the potential for exposure and consequence

and then identify the type or types to be considered.

"Type"	Type 1/2	Type 3	Type 4	Type 5	Type 6
Exposure level	Gas/vapor	Liquid spray under pressure (jet spray)	Liquid spray (shower/saturation)	Airborne particulates	Light spray/mist

3. Consider the 'secondary' hazard(s)







Heat and flame	Static discharge	Low visibility	Physical demands	Comfort
				

4. Review technical data

Review product technical data in relation to physical, barrier and comfort properties – match to assessment outcomes from stages 1–3.

5. Make your product selection

Identify the correct protection segment and category to find the right protection solutions matched to your safety needs and work environment.

Protection category		Protection segment
 <b>Gas and vapor protection</b> A range of Type 1 and Type 1-ET gas-tight chemical protective suits for hazmat emergency response providing protection from dangerous and toxic liquid and gaseous chemicals.		Limited/single use
		Re-usable
 <b>Ventilated/air-fed protection</b> Our PAPR, AIRline and AVANT AIRline suit range combines respiratory protection with our exceptional chemical barrier technologies.		Limited/single use
		Re-usable
 <b>Liquid spray and splash protection</b> An extensive range of Type 3, Type 4 and Type 5 protective suits and partial body accessories utilizing our exceptional chemical barrier technologies to provide protection against a wide range of organic and inorganic liquid chemicals, particulates and biohazards.		Limited/single use
		Re-usable
 <b>Particulate or low hazard liquid protection</b> A broad range of lightweight, breathable Type 5 and Type 6 protective suits and partial body accessories providing protection from dry particulates, low-concentration liquid chemicals and biological agents.		Limited/single use
 <b>Chemical flame retardant protection</b> Always to be worn over a thermal FR protective garment, our range of chemical protective suits provides EN ISO 14116 Index 1 limited flame spread protection along with liquid chemicals and particulates.		Limited/single use
 <b>Contaminated water diving protection</b> An extensive portfolio of dry diving suits manufactured from a range of materials which include vulcanized rubber and PU suits which provide class-leading protection for divers in contaminated water.		Re-usable

CLEANROOM CLASSIFICATION

The FED-STD-209, Airborne Particulate Cleanliness Classes in Cleanrooms & Clean Zones was first published as FS 209 in 1963 by the Institute of Environmental Science and Technology (IEST). It became the foundation of the ISO 14644-1 standard: Cleanrooms and associated controlled environments.

Part 1: Classification of air cleanliness by particle concentration, which is used today. The FS 209 was replaced by ISO 14644 in 1999 within the EU and in 2001 in the USA.

The ISO 14644 standard defines the classification number of a cleanroom dependent on the maximum allowable concentration of certain size particles per m³. The lower the ISO classification number the lower concentration of particles measured, and the ‘cleaner’ the cleanroom.

ISO classification number (N)	Maximum allowable concentrations (particles/m³) for particles equal to and greater than the considered sizes shown below						FED-STD-209E
	0.1 µm	0.2 µm	0.3 µm	0.5 µm	1.0 µm	5.0 µm	
ISO Class 1	10						
ISO Class 2	100	24	10				
ISO Class 3	1,000	237	102	35			Class 1
ISO Class 4	10,000	2,370	1,020	352	83		Class 10
ISO Class 5	100,000	23,700	10,200	3,520	832		Class 100
ISO Class 6	1,000,000	237,000	102,000	35,200	8,320	293	Class 1,000
ISO Class 7				352,000	83,200	2,930	Class 10,000
ISO Class 8				3,520,000	832,000	29,300	Class 100,000
ISO Class 9				35,200,000	8,320,000	293,000	



CHOOSING THE RIGHT CONSUMABLES

The biggest contributor of contamination within a cleanroom is people. To avoid the introduction of contamination/particles into the clean environment, it is imperative that anyone working within a controlled environment wears the most appropriate clothing for the cleanroom ISO classification. The suggested consumables which should be worn within each of these classified areas are:



- Coveralls
- Should offer total body coverage.
  - Be comfortable for the wearer for extended periods of time.
  - Have a zip fastening front.
  - Should have elasticated cuff and ankle openings.



- Hoods
- Should provide full coverage of the wearer's head.
  - Should have an elasticated face opening.



- Overboots
- Should have flat soles.
  - Should provide total coverage of the foot and lower leg.



- Gloves
- A variety of gloves manufactured from Latex, Nitrile, Polychloroprene or Polyisoprene can be used.
  - They must be powder-free if used within the Cleanroom.



- Facemasks
- Can be either disposable or re-usable dependent on application.
  - Should provide full coverage of the mouth and nose.



- Coats
- Can be supplied with a center or side fastening zip or a stud fastening front closure.
  - The cuffs can have various fastenings including stud, elastic and Lycra.



- Overshoes
- Should be supplied with flat soles.
  - Should provide coverage of the foot.



- Undergarments
- Comprise of short or long-sleeved tunics and trousers.



- Bouffant Caps
- Should provide coverage of the wearer's hair.

WHICH CONSUMABLES DO I CHOOSE FOR WHICH ISO CLASSIFICATION?

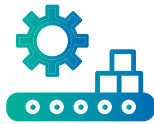
The IEST-RP-CC003.4 standard for **Garment system consideration for cleanrooms and other controlled environments**, recommends the best practice for the gowning of personnel as a critical aspect of cleanroom contamination control. Outlined below is guidance for the selection of garments or apparel and accessories appropriate for use in cleanrooms and controlled environments.

ISO EN 14644-1 2015 Classification Number							
CONSUMABLES	1 & 2	3	4	5	6	7	8
Hood	○	✓	✓	✓	○	○	○
Coverall	✓	✓	✓	✓	✓	○	○
Overboots	✓	✓	✓	✓	✓	○	○
Overshoes	✗	✗	✗	✗	○	✓	○
Undergarments	✓	✓	✓	✓	○	○	○
Coats	✗	✗	✗	✗	○	✓	✓
Facemasks	○	✓	✓	✓	○	○	○
Gloves	✓	✓	✓	✓	○	○	○
Bouffant Cap	○	✓	✓	✓	✓	✓	✓
Key: ✓ Recommended    ○ Application Specific    ✗ Not Recommended							

The user should assess the choice of apparel and accessories carefully to ensure these are suitable for the Class of cleanroom, the nature and duration of the task. This table is only intended as a general guide and should not be construed as a recommendation of the apparel required for a particular Class of cleanroom. Please see the Standard Operating Procedure of the cleanroom for the apparel required, the gowning procedure and change frequency.







## CONTROLLED/CRITICAL ENVIRONMENTS

### 1 WHERE CAN I FIND THE PRODUCT TEST REPORTS?

Product data sheets are used to present information about our products to customers in an easy-to-digest format. If you have specific queries about a product, we can provide detailed answers and reports. For some of our products there is a lot of information available, and for a number of those we have compiled product validation packs.

### 2 HOW MUCH EXPERIENCE DO WE HAVE WITH MEETING THE NEEDS OF VARIOUS CRITICAL ENVIRONMENTS?

We have over 50 years of technical experience in cleanrooms and critical operating environments. This wealth of industry experience gives us a unique and priceless knowledge base that we use to help our distributors and their customers find the right products for their needs. If you have any queries then please do not hesitate to contact us.

### 3 WHAT ARE LATEX GLOVES?

Latex gloves are manufactured from natural rubber latex, derived from the sap of the rubber tree, *Hevea brasiliensis*.

### 4 WHAT ARE NITRILE GLOVES?

Nitrile gloves are manufactured from a petroleum-based, cross-linked synthetic latex film that is formed by the co-polymerization of butadiene with acrylonitrile to yield a nitrile elastomer.

### 5 WHAT ARE GLOVE ALLERGIES?

A glove allergy, or hypersensitivity, occurs when a person's immune system reacts to the natural latex proteins and/or the additives used during the manufacturing process of gloves. The reactions range from mild (skin rash, runny nose, itchy, watery eyes) to more extreme manifestations such as facial or throat swelling, and difficulty in breathing. Whilst most allergies or sensitivities are generally slight, a very small percentage of users may experience very severe reactions.

### 6 WHY WOULD I USE A 16" GLOVE?

You would use a 16" glove if you want more protection up to the elbows when covering the sleeve. Also, a 16" glove will hold the sleeve in-place better than a 12" glove.

### 7 WHAT IS THE DIFFERENCE BETWEEN TYPE 1 AND TYPE 4 ALLERGIES?

Type 1: The most serious and the rarest form, Type 1 is an immediate and potentially life threatening reaction, not unlike the severe reaction some people have to bee stings. This form of Allergy is normally associated with latex proteins. Latex allergies can be acquired over time due to prolonged contact with latex products. Type 4: Also known as allergic contact dermatitis. This involves a delayed skin rash with blistering and oozing of the skin, and is usually attributed to the accelerators used in the processing of rubber products. We offer products that are manufactured without accelerators-further information can be supplied on request.

### 8 WHEN DOES A PPE GLOVE BECOME A CATEGORY III GLOVE FOR CHEMICAL PROTECTION?

According to the Personal Protective Equipment Regulation (PPER), (EU) 2016/425, any PPE that protects against risks that may cause very serious consequences such as death or irreversible damage to health relating to substances and mixtures which are hazardous to health is Category III. Any glove that protects against 'cleaning materials of weak action or prolonged contact with water are defined as Category I. So any glove that is intended to protect against anything other than the weakest of chemicals is a Category III glove.

### 9 HOW CAN I TELL IF GLOVES HAVE BEEN STERILIZED?

The packaging clearly shows they are sterile gloves. Each carton will have a red irradiation sticker, showing that the contents have been gamma sterilized. The irradiation sticker is yellow prior to sterilization and changes color to red during processing. A certificate of irradiation is available showing the lot number and carton number and confirming that the gloves have been sterilized.

### 10 WHEN SHOULD YOU DOUBLE DON GLOVES?

We recommend double donning gloves to provide extra protection. The more layers, the more protection against chemicals. Also, double donning limits the chance of penetration through pinholes. Statistically, there is a very low chance of two pinholes being in exactly the same place on two gloves. Gloves designed to work as a double-gloving system, offer operators an additional layer of protection throughout chemo preparation and administration process. By using a brightly colored underglove with a natural colored outer glove, any breach is immediately visible, giving the operator an early signal to change gloves.



## LABORATORY/RESEARCH

### 1 WHAT IS MEANT BY CHEMICAL PERMEATION AND PENETRATION?

Chemical permeation is the process by which a chemical moves through a protective glove material on a molecular level. Permeation involves the following: absorption of molecules of the chemical into the contacted (outside) surface of a material, diffusion of the absorbed molecules in the material, and desorption of the molecules from the opposite (inside) surface of the material. Penetration is the movement of a chemical and/or micro-organism through porous materials, seams, pinholes, or other imperfections in a protective glove material or other barrier layer on a non-molecular level.

### 2 WHAT DOES BFE, PFE & DELTA P MEAN?

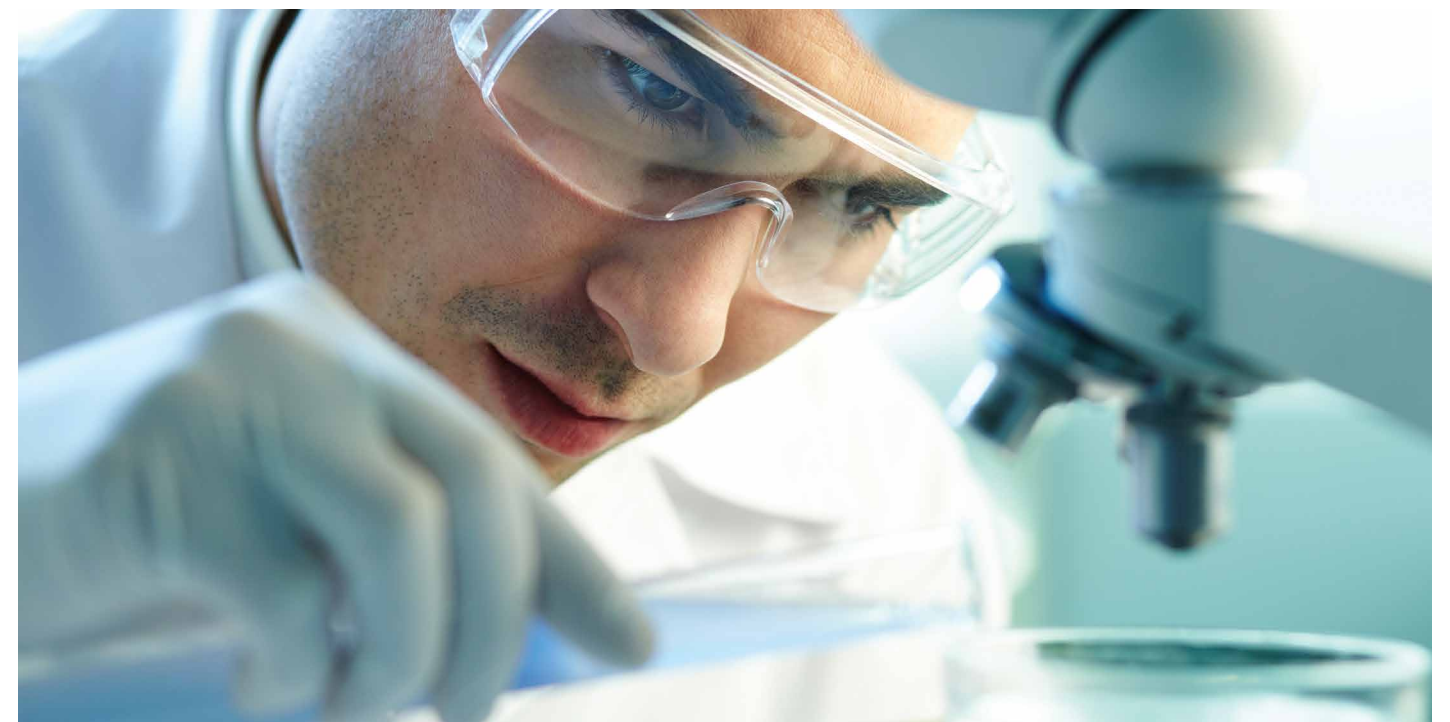
When selecting a facemask, it's important to choose one with the right filtration efficiency for the level of protection needed. The BFE % of a facemask is the measurement of bacterial filtration efficiency and PFE % is the measurement of particle filtration efficiency. Facemasks with a high BFE and PFE % are recommended for use in cleanrooms, ensuring high filtration of both bacteria and particles. The Delta P symbol stands for Differential Pressure (Delta P) and refers to the pressure drop across a facemask (or the resistance to air flow) and is measured in mmH<sub>2</sub>O/CM<sup>2</sup>. A lower Delta P indicates easier breathing, however higher filtration efficiency generally increases the Delta P.

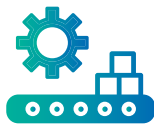
### 3 WHAT IS THE DIFFERENCE BETWEEN A CERTIFICATE OF IRRADIATION (COI) AND A CERTIFICATE OF PROCESSING (COP)?

The Certificate of Irradiation (COI) refers to products that are gamma irradiated, and the Certificate of Processing (COP) refers to products that are processed with ETO (e.g. goggles).

### 4 WHAT DOES SAL 10<sup>-6</sup> MEAN?

A Sterility Assurance Level of 10<sup>-6</sup> means that for every 1,000,000 items sterilized there may be one that contains bacteria that have survived the sterilization process. The SAL is a statistical probability that is used because it is impossible to prove that all bacteria have been killed during the sterilization process. In practice, the theoretical degree of processing to achieve the desired SAL is determined, and then routine processing is set at a higher level in order to achieve 'overkill'.





## PRODUCTION/MANUFACTURING

### 1 WHICH GLOVES SHOULD I USE IF I NEED ESD PROPERTIES?

Nitrile, Neoprene/Polychloroprene and Vinyl gloves are the best to choose when looking for a glove with good ESD properties. The differences between anti-static and ESD are-ESD properties means the characteristics of a material which determine the way it performs when exposed to static electricity. Anti-static is the property of a material which either prevents the build-up of static electricity or reduces its effects.

### 2 WHAT ARE THE CERTIFICATIONS OF YOUR CLEANROOM GLOVES?

All our CE-marked cleanroom gloves are certified to comply with the requirements of the Personal Protective Equipment Regulation (PPER), (EU) 2016/425. Under the terms of the regulation, our gloves are classed as Category III PPE.

By CE marking, we claim that they satisfy the essential safety requirements of Regulation (EU) 2016/425 by the application of the following standards: EN 420:2003 +A1: 2009: Protective gloves – general requirements; EN 374-1: 2016: Protective gloves against dangerous chemicals and microorganisms – Part 1 Terminology and performance requirements for chemical risks; EN 374-2: 2015: Protective gloves against dangerous chemicals and microorganisms – Part 2 Determination of resistance to penetration; EN 374-4: 2013: Protective gloves against chemicals and microorganisms – Part 4 Determination of resistance to degradation by chemicals; EN 374-5: 2016: Protective gloves against dangerous chemicals and microorganisms – Part 5 Terminology and performance requirements for micro-organisms risks.

### 3 HOW LONG CAN CLEANROOM MASKS BE WORN?

As far as we are aware, there is no recommendation or code of practice that stipulates the length of time that a mask can be worn before it must be changed. Indeed every individual and every environment is different, so the length of time that a particular mask can be worn for depends on the conditions and should be assessed by the company operating the cleanroom. In practice, due to regular comfort breaks during a work shift, the reality is that masks (along with gloves) will be changed every two to three hours, and so the question of the maximum amount of time that a mask can be worn becomes academic.

### I AM CONCERNED ABOUT THE SAFETY OF MY ETO STERILIZED

### 4 GOGGLES. WHAT CAN YOU TELL ME ABOUT ETO EXPOSURE LEVELS?

The permissible levels of EO residuals are specified in ISO 10993-7: 2008, Biological evaluation of medical devices Part 7: Ethylene oxide sterilization residuals. There are two residual chemicals of concern, namely Ethylene Oxide (EO) and Ethylene Chlorohydrin (ECH).

As part of the sterilization validation, we tested for residuals and found the average levels to be EO = 0.43mg and ECH = 0.06mg per goggle. Approximately 6% of the goggle is in contact with the wearer so the residuals that are transferrable to the wearer are EO = 0.026mg and ECH = 0.004mg. The standard defines three exposure categories for the device then assigns safe exposure limits for each category.

The categories are: a) Limited exposure: devices whose single or multiple use or contact is likely to be up to 24 h; b) Prolonged exposure: devices whose single, multiple, or long-term use or contact is likely to exceed 24h but not 30 days; c) Permanent contact: devices whose single, multiple, or long-term use or contact exceeds 30 days. With a product like the goggles, the time worn in total is taken into account, not the time that each goggle is worn. Given the definitions above, a typical worker is going to exceed 30 days so we need to treat the exposure as permanent contact.

NOTE: ISO 10993-7 defines Lifetime as 25,000 days. So, our Eto sterilized goggles are well within the limits set by ISO with the actual results being about a quarter of the allowable levels. With regard to FDA requirements, the only document dealing with residuals is a draft guidance document from June 1978, which never progressed beyond the draft stage. In that document the limits were set at 250 parts per million for EO and also for ECH. We have looked up several guidance documents for specific medical devices that are EO sterilized and in those there are references to ISO 10993-7 for the evaluation of residuals. That guidance looks to have started in about 2000 and ISO 10993-7 is now listed on the FDA site as a Recognized Consensus Standard, which means that it can be used in claims of compliance in 510(k) submissions. We have not found anything on the FDA website which discourages the use of Ethylene Oxide as a method of sterilization. In fact ISO 11135-1, which is the standard for the Ethylene Oxide sterilisation process, is also listed as a Recognized Consensus Standard which would indicated that it is an acceptable method of sterilization.



## RABS AND ISOLATOR GLOVES

### 1 BIOCLEAN NITRILE RABS & ISOLATOR GLOVES ARE 100% INSPECTED, HOW?

Our manufacturing process has five separate product inspections throughout. Each Nitrile RABS/Isolator glove/mitten is visually inspected 100% for holes, along with water and air pressure testing.

This is achieved by the gauntlet being filled with air to a specified pressure before being submerged underwater for three minutes. The water is checked for any bubbles identifying whether the product has a pinhole leak. This 100% inspection guarantees delivery of a glove or mitten free from holes, and is more rigorous than the AQL approach for surgical gloves which is based on a statistical sampling plan.

### 2 CAN THE NITRILE ISOLATOR GLOVES BE AUTOCLAVED?

Yes. Our nitrile RABS/isolator gloves can be autoclaved and perform better than CSM/Hypalon. For documentation, please contact us.

### 3 CAN THE NITRILE ISOLATOR/RABS GLOVES BE WIPED DOWN WITH IPA IN 70% CONCENTRATION?

Yes. For documentation, please contact us.

### 4 CAN THE NITRILE ISOLATOR/RABS GLOVES BE SUBJECTED TO VHP?

Yes. For documentation, please contact us.

### 5 ARE THE NITRILE RABS/ISOLATOR GLOVES PROP 65 COMPLIANT?

Yes. The nitrile RABS/Isolator gloves do not contain Prop 65 listed chemicals. For documentation, please contact us.

### 6 WHAT IS THE STANDARD LEAD TIME?

Our Nitrile RABS/Isolator Gloves are made to order with a usual lead time of 8-10 weeks.

### 7 WHAT PACKAGING DO YOU USE?

Nitrile RABS/Isolator Gloves are individually triple bagged in PE so that you can maintain cleanliness and sterility as you bring the gloves into your final production area.







**Contact your Ansell representative for ordering or more information.**

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