



Protect Your People™

Australia / New Zealand / Oceania Catalogue





Lakeland Industries Incorporated has successfully established itself as the leader of protective apparel solutions across the globe, servicing industry with innovative fabric, design and manufacturing expertise.

Headquartered in Ronkonkoma, New York since 1982, Lakeland products are sold through key global distribution partnerships and serviced from our designated manufacturing hubs across 6 countries and distributed via 13 strategically placed warehouses.

Our technical support to our distribution partners provides the trust and respect required for hazardous industry. Our products are used in a wide range of markets including Mining, Government and Security, Oil, Gas, Petrochemical, Structural and Wildland Fire Fighting, Construction, Multi-Utility, Automotive, Healthcare, Forensic and Military.

By listening to our customers and end-users first, Lakeland provide end to end design and manufacturing solutions which has been the key to our continued success. Unlike many manufacturers and wholesalers, Lakeland utilise global fabric spinner and weaver technologies to maximise the protection, comfort and durability our end users expect.

With a number of trading options available throughout the globe, Lakeland is your manufacturer of choice if you are serious about protecting the workforce.

As we say, "Protect your People"

Lakeland Industries, Inc. is publicly traded on NASDAQ as LAKE.

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## STANDARDS

The basic OSHA Standard calls for 4 levels of protection, A through D, and specifies in detail the equipment and clothing required to adequately protect the wearer at corresponding danger levels.

Level A	Level B	Level C	Level D
To be selected when the greatest level of skin, respiratory, and eye protection is required Positive pressure, full face-piece SCBA, or positive pressure supplied air respirator with escape SCBA Totally-encapsulating chemical-protective suit Coveralls, Gloves outer, Gloves inner, boots, hard hat, etc.	The highest level of respiratory protection is necessary but a lesser level of skin protection is needed. Positive pressure, full face-piece SCBA, or positive pressure supplied air respirator with escape SCBA Hooded chemical-resistant clothing (overall and long-sleeved jacket, coveralls, one or two-piece chemical-splash suit, disposable chemical resistant coveralls) Coveralls, Gloves outer, Gloves inner, Boots outer, Boots inner, Hard Hat, etc.	The concentration(s) and type(s) of airborne substances(s) is known and the criteria for using air purifying respirators are met. Full-face or half-mask, air purifying respirators Hooded chemical-resistant clothing (overall and long-sleeved jacket, coveralls, one or two-piece chemical-splash suit, disposable chemical resistant coveralls) Coveralls, Gloves outer, Gloves inner, Boots outer, Boots inner, Hard Hat, etc.	A work uniform affording minimal protection: used for nuisance contamination only. Safety glasses or splash goggles Coveralls, Gloves outer, Gloves inner, Boots outer, Boots inner, Hard Hat, Escape Mask, etc.

### The EN standard calls for six types of protection.

All Lakeland coveralls are classed as Category III "Complex" products as they are designed to protect the wearer from chemical hazards. In the case of clothing designed to protect against chemicals, six "Types" of protection have been identified with standards written for each as follows.

EN Symbol	EN Type	Type Description	Lakeland Products
	( Type 1 ) EN943-1, EN943-2	Gas Tight Protective Clothing. Protective clothing against liquid and gaseous chemicals, aerosols and solid particulates	Interceptor*
	( Type 2 ) EN943-1	Non Gas Tight Protective Clothing. Suits which retain positive pressure to prevent ingress of dusts, liquids and vapours	
	( Type 3 ) EN14605	Liquid Tight Suits Suits which can protect against strong and directional jets of liquid chemical	Pyrolon CRFR, Pyrolon TPCR, EPVC ChemMAX1, ChemMAX2, ChemMAX3, ChemMAX4
	( Type 4 ) EN14605	Spray Tight Suits Suits which offer protection against saturation of liquid chemicals	MicroMAX TS, Pyrolon CRFR, Pyrolon TPCR ChemMAX1, ChemMAX2, ChemMAX3, ChemMAX4, EPVC
	( Type 5 ) EN ISO 13982-1 (&2)	Dry Particle Suits Suits which provide protection to the full body against airborne solid particulates	SafeGard, MicroMAX NS, MicroMAX CoolSuit, MicroMAX, Pyrolon XT, Pyrolon Plus2
	( Type 6 ) EN13034	Reduced Spray Suits Suits which offer limited protection against a light spray of liquid chemicals	SafeGard, MicroMAX NS, MicroMAX CoolSuit, MicroMAX, Pyrolon XT, Pyrolon Plus2

EN Symbol	Other EN Standards	Description	Lakeland Products
	EN1149-5	Protective clothing with electrostatic properties.	SafeGard, MicromMAX Series, Pyrolon XT, Pyrolon CRFR, Pyrolon TPCR, ChemMAX1, ChemMAX2, ChemMAX3
	EN1073-2	Protective clothing against radioactive particulate contamination.	SafeGard, MicroMAX Series, ChemMAX1, ChemMAX2, ChemMAX3, ChemMAX4, Pyrolon XT, Pyrolon Plus2
	EN14126	Protective clothing against infective agents.	MicroMAX Series, ChemMAX1, ChemMAX2, ChemMAX3, ChemMAX4, Interceptor
	EN ISO 14116	Protective against heat and flame.	Pyrolon CRFR, Pyrolon XT, Pyrolon Plus2
	EN11612	Protective against heat, flame and molten metal splash.	Pyrolon TPCR
	EN11611	Used as welding protective clothing.	Pyrolon TPCR
	NFPA70E	Protective against arc flash.	Pyrolon TPCR,

## Which garment to use?

# 1.

The task/  
hazard type?

What is the  
spray type?

- Light spray
- Liquid spray
- Jet spray
- Vapours/gases

? The task may suggest a choice of fabric and garment design.



CE Types are a good guide to the different types of chemical contact and a clear indication of garment choice.

TYPE 6	TYPE 5	TYPE 4	TYPE 3	TYPE 2	TYPE 1
Light Spray TYPE 6	Hazardous Dust TYPE 5	Liquid Spray TYPE 4	Jet Spray TYPE 3	Gas or Vapour TYPE 1 & 2	
Light spray / aerosol protection	Dry particle protection	General overall spray: no pressure but coverall soaked	Strong jet sprays - higher pressure	Surrounding gases or vapours	
Type 6 garment MicroMax® / SafeGard®	Type 5 garment MicroMax® / SafeGard®	More comfortable design options? 2-piece ensemble? - Cool Suit® Advance Plus	Single piece coverall with sealed seams and effective front fastening	Gas-Tight - fully enclosed / air-tight seams and closures; access to portable air	
Design choices are subject to the chemical toxicity. eg: A Type 6 application may require sealed seams if the chemical is highly toxic.		ChemMax® 1,2,3 ChemMax® 4	ChemMax® 1,2,3 ChemMax® 4	Interceptor®	

### Physical factors such as strenuous work?



The physical demands of a task, such as climbing ladders, crawling or working in confined spaces, especially if the chemical is highly toxic, might suggest higher strength fabric or a specific design, even though permeation analysis and/or the hazard spray type indicate a lighter/more comfortable garment.

For a summary of typical physical factors affecting garment choice.

### Liquid or gas?



Liquid would normally suggest a Type 3 or 4 hazard. However, some chemicals have low boiling points, becoming vapour at low temperatures.

In such cases a gas-tight suit might be appropriate.

Such information can be obtained from Material Safety Data Sheets.

### Type 5 & 6 applications

A 'non-barrier' fabric such as SMS (SafeGard®) or microporous film laminate (MicroMax®) with simple suit design (serged seams / basic zip flap).

In some cases a higher spec (Type 4 to 1) garment might be appropriate.

For example:- a liquid aerosol or dust concentrated in a high volume or poorly ventilated area.

Or if the chemical is highly toxic or dangerous so the consequences of minor contamination are greater.

Most suits are certified to Types 3 and 4. Yet many applications are either Type 3 or 4.

Distinguishing between the two can be an important indicator of garment choice.

### The difference between Type 3 and 4?



#### Type 3 (jet spray)

single jet sprays of liquid at pressure.  
Type test : the jet is aimed at weak areas of the suit.



#### Type 4 (liquid spray)

wider, lower spray over a wider surface area.

An application defined as Type 4 (rather than Type 3) allows a wider choice of more comfortable options (subject to the chemical hazard)

# Garment Selection Guide ..... Which Hazard Spray Type?

## 2.

### Which hazard / spray type?

Why define the difference between Type 3 and 4 protection?

EN 14605



The EN 14605 standard defines two different levels of liquid spray protection: Type 3 & 4.



Most garments on the market are Type 3 and 4.

Why?

Each is tested with a distinct finished garment spray test. (see panel below)



By identifying that your application is Type 4 only (rather than Type 3) allows more options for garment design choice and enables a greater level of comfort.

### EN 14605 - Type 3 : "jet" sprays

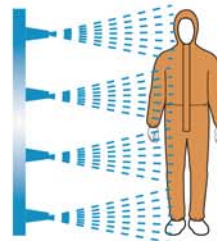


- Strong, directional jets of liquid spray
- Results in intense, local pressure on fabric, seams and joins.
- Back-spray will penetrate under, up or behind any loose flaps or joins
- In finished garment spray test single jets of liquid are sprayed at "potential" weak areas in suit (eg, seams, crotch, zip flap etc.)



- Demands full coverall design with fully sealed seams and effective front fastening.

### EN 14605 - Type 4 : "liquid" sprays



- Wider, less pressurised liquid sprays.
- Results in saturation of fabric (so sealed seams required) but no pressure on garment, seams or joins.
- No risk of backspray penetrating under, up or behind loose flaps or joins.
- In finished garment spray test four nozzles with general overspray of liquid.



- Allows more flexible and more comfortable design options.



### Type 4 Lakeland garment options



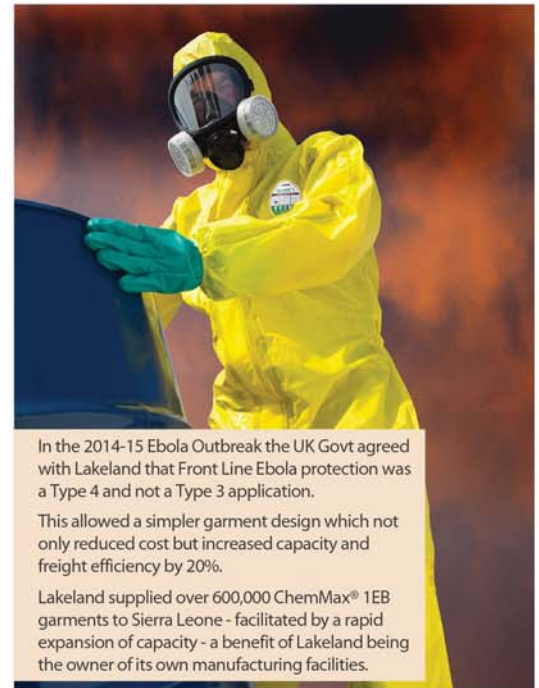
#### Cool Suit® Advance Plus.

More comfortable, breathable Type 4 coverall. Features a breathable flap covered panel to rear which allows air circulation for comfort.



#### MicroMax® TS

Taped seams, lightweight, flexible coverall. Fabric passes all tests in the EN 14126 infectious agent standard. Suitable for many medical, pharmaceutical and biological applications.



In the 2014-15 Ebola Outbreak the UK Govt agreed with Lakeland that Front Line Ebola protection was a Type 4 and not a Type 3 application.

This allowed a simpler garment design which not only reduced cost but increased capacity and freight efficiency by 20%.

Lakeland supplied over 600,000 ChemMax® 1EB garments to Sierra Leone - facilitated by a rapid expansion of capacity - a benefit of Lakeland being the owner of its own manufacturing facilities.

# Garment Selection Guide... Physical Properties Comparison Table

## 3.

### Physical properties/ comparison tables

Selection of a chemical suit may require assessment of garment and fabric physical properties and suitability for the physical demands of the application.

The tables below compare Lakeland fabrics with common equivalent brands.

Physical Properties				
Property	EN Standard	ChemMax® 1	Brand A	Brand B
		CE Class	CE Class	CE Class
Abrasion Resistance	EN 530	2	5	3
Flex Cracking	ISO 7854	1	3	6
Trapezoidal Tear	ISO 9073	3	1	2
Tensile Strength	EN 13934	3	3	2
Puncture Resistance	EN 863	2	2	2
Surface Resistivity	EN 1149	Pass	Pass	Pass
Seam Strength	ISO 5082	170N	>125N	>125N

Property	EN Standard	ChemMax® 2	ChemMax® 3	Brand C	Brand D	ChemMax® 4
		CE Class	CE Class	CE Class	CE Class	CE Class
Abrasion Resistance	EN 530	6	2	6	6	6
Flex Cracking	ISO 7854	6	4	1	5	1
Trapezoidal Tear	ISO 9073	4	4	2	3	6
Tensile Strength	EN 13934	4	2	3	2	4
Puncture Resistance	EN 863	2	2	2	2	2
Surface Resistivity	EN 1149	Pass	Pass	Pass	Pass	Pass
Seam Strength	ISO 5082	148.3N	165.28N	>125N	>125N	449N

Property	EN Standard	ChemMax® 4	Interceptor®	Brand E	Brand F
		CE Class	CE Class	CE Class	CE Class
Abrasion Resistance	EN 530	6	6	6	6
Flex Cracking	ISO 7854	1	2	1	1
Trapezoidal Tear	ISO 9073	6	6	5	3
Tensile Strength	EN 13934	4	4	4	4
Puncture Resistance	EN 863	2	2	2	2
Surface Resistivity	EN 1149	NT	NT	N/A	Pass
Seam Strength	ISO 5082	449N	648N	607N	>300<500N

The tables show that for the majority of physical factors Lakeland options have superior or similar properties to the main alternatives.

Various physical properties may be more critical in different applications.

Higher tear resistance indicates a softer fabric with greater stretch properties, resulting in a more comfortable garment.

Where required properties are similar, selection can be based on other factors such as permeation resistance, garment features and comfort.



Physical properties can be enhanced by design. For example, Lakeland ChemMax® 1,2 and 3 garments feature cushioned knee-pads.

### Physical Properties Testing Glossary

These fabric tests are a standard requirement of certification to chemical protective clothing standards.

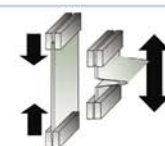
#### Abrasion Resistance

Fabric is abraded by a rotating disc with a set force applied. Measured in cycles required to cause damage. Reflects resistance to rubbing or general wear.



#### Flex Cracking Resistance

Fabric is repeatedly flexed between two opposing grips. Measured in cycles required to cause "cracking" or damage. Reflects resistance to general wear.



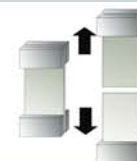
#### Trapezoidal Tear Resistance

Measures the force required to continue a "tear" in the fabric edge. Measured in Newtons (N) and in machine and cross fabric directions. Reflects resistance to damage from sharp points and edges.



#### Tensile Strength

Measures the force required to tear the fabric with opposing, increasing force. Measured in Newtons (N) and in machine and cross fabric direction. Reflects basic fabric strength.



#### CD or MD?

Some tests are undertaken in cross (CD) and machine (MD) directions. CD is across the width of the fabric roll. MD is along its length. In most fabrics more fibres tend to orient in the machine direction so MD tends to be stronger.

#### Puncture Resistance

Measures the force required to hole the fabric with a spike with increasing pressure applied. Measured in Newtons (N). Reflects resistance to damage by sharp points and edges.



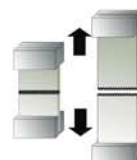
#### Anti-Static

(Electrostatic Surface Resistance) Measures the tendency of the fabric to resist surface dissipation of an electrostatic charge (i.e. a lower resistance allows a charge to dissipate and go to earth). Measured in ohms (Ω). Requires maximum of  $2.5 \times 10^9 \Omega$ . Important for garments used in potentially flammable atmospheres. If resistance is high a charge may build to the point of discharge in the form of an igniting spark.



#### Seam Strength

Measures force required to burst a seam using an increasing opposing force. Measured in Newtons (N). Reflective of garment construction strength.





Serged (stitched) overlapped seams



**Entry level SMS based hazardous dust (Type 5) and liquid aerosol (Type 6) protective coverall with high comfort level.**

- 55gsm SMS fabric with high breathability and superior level of comfort.
- Air permeability over 10 times that of flash-spun polyethylene or microporous film laminates.
- Air permeability negates generation of the bellows effect which on low-breathable fabrics encourage penetration of particles through seams and closures.
- Available in white, blue, red and orange.
- Lakeland "Super-B" ergonomic styling – unique combination of three design elements to optimise fit, durability and freedom of movement.
- Three piece hood for rounder head shape and greater comfort.
- Inset sleeves – torso shaped to body to maximise freedom of movement and negate the need for thumbloops.
- Two piece crotch gusset – enhances freedom of movement and reduced crotch splitting.

**Physical Properties**

Property	EN Std	MicroMax® NS /TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE
		CE Class	CE Class	CE Class	CE Class	CE Class
Abrasion Resistance	EN 530	3	2	3	6	2
Flex Cracking	ISO 7854	6	6	6	6	6
Trapezoidal Tear	ISO 9073	3/2	4/2	3	3/2	1
Tensile Strength	EN 13934	2/1	2	3	2/1	1
Puncture Resistance	EN 863	1	1	1	1	2
Burst Strength	ISO 2960	2	3	2	3	2
Seam Strength	ISO 5082	3*	3	3	3	3

**Chemical Repellency and Penetration EN 6530**

Chemical	MicroMax® NS/TS		MicroMax®		SafeGard® GP		SafeGard® 76		Flashspun PE	
	R	P	R	P	R	P	R	P	R	P
Sulphuric Acid 30% CAS No. 67-64-1	3	3	3	3	3	3	3	3	3	3
Hydrochloric Acid 10% CAS No. 70-05-8	3	3	3	3	3	3	3	3	3	3
O-Xylene CAS No. 75-15-0	3	2	3	2	NT	NT	NT	NT	1	1
Butanol CAS No. 75-09-2	3	2	3	2	NT	NT	NT	NT	2	1

**Breathability - measured by air permeability and moisture vapour transmission rate (MVTR)**

	MicroMax® NS/TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE	Cotton T-shirt
Air permeability cubic feet/minute (cfm)	<0.5	<0.5	40	40	~3.3	180
MVTR	119.3	NT	NT	NT	111.2	NT

**Infectious Agent / Biological Hazard Protection**

Tested according to EN 14126. This consists of four different tests to assess protection against different forms of classification. Note these tests are on fabric only. We would always recommend a garment with sealed seams such as MicroMax® TS for protection against infectious agent hazards.

Test Description	Test No.	MicroMax® NS/TS	SafeGard® GP/76	Flashspun PE
Protection against blood and body fluids	ISO 16604:2004	6 (max is 6)	Not recommended	<1
Protection against biologically contaminated aerosols	ISO 22611:2003	3 (max is 3)	Not recommended	1
Protection against dry microbial contact	ISO 22612:2005	3 (max is 3)	Not recommended	1
Protection against mechanical contact with substances containing contaminated liquids	EN 14126:2003 Annex A	6 (max is 6)	Not recommended	1

**SafeGard™ GP Styles**



**Style code 528**  
Coverall with elasticated hood, cuffs, waist & ankles.  
Sizes: S - XXXL



**Style code L528**  
Coverall with elasticated hood, cuffs with thumb loops, waist & ankles.  
Sizes: S - XXXL



**Style code 514**  
Coverall with elasticated hood, cuffs, waist and attached socks.  
Sizes: S - XXXL



**Style code L514**  
Coverall with elasticated hood, cuffs with thumb loops, waist and attached socks.  
Sizes: S - XXXL



**Style code 101**  
Lab coat with two hip pockets. 4 stud fastening.  
Sizes: M - XL



**Style code 101Z**  
Lab coat with two hip pockets. Zip fastening.  
Sizes: M - XL



**Style code 527**  
Rear entry gown with elasticated sleeves and ties.  
Sizes: M - XL



**Style code 024**  
50cm sleeves with elasticated ends.  
Size: One size



**Style code 020**  
Cape hood with elasticated face opening.  
Size: One size

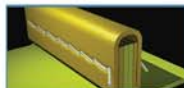


**Style code 022**  
Standard overshoes with elasticated tops.  
Size: One size

**Style code 022NS**  
Overshoes with elasticated tops, anti-slip soles.  
Size: One size

**Style code 022ANS**  
Overshoes with elasticated tops, anti-static soles.  
Size: One size

Available in: White  Blue  Red  Orange



Stitched  
& Bound  
Seams



TYPE 5



TYPE 6



EN 1073-2



EN 1149-1



### Entry level SMS based hazardous dust (Type 5) and liquid aerosol (Type 6) protective coverall with high comfort level.

- 50gsm SMS fabric with high breathability and superior level of comfort.
- Air permeability over 10 times that of flash-spun polyethylene or microporous film laminates.
- Air permeability negates generation of the bellows effect which on low-breathable fabrics encourage penetration of particles through seams and closures.
- Available in white, blue, red and orange.
- Lakeland "Super-B" ergonomic styling – unique combination of three design elements to optimise fit, durability and freedom of movement.
- Three piece hood for rounder head shape and greater comfort.
- Inset sleeves – torso shaped to body to maximise freedom of movement and negate the need for thumbloops.
- Two piece crotch gusset – enhances freedom of movement and reduced crotch splitting.
- Bound seam for added strength and protection.

#### Physical Properties

Property	EN Std	MicroMax® NS/TS	MicroMax®	SafeGard® EP	SafeGard® 76	Flashspun PE
		CE Class	CE Class	CE Class	CE Class	CE Class
Abrasion Resistance	EN 530	3	2	2	6	2
Flex Cracking	ISO 7854	6	6	6	6	6
Trapezoidal Tear	ISO 9073	3/2	4/2	2	3/2	1
Tensile Strength	EN 13934	2/1	2	3	2/1	1
Puncture Resistance	EN 863	1	1	1	1	2
Burst Strength	ISO 2960	2	3	2	3	2
Seam Strength	ISO 5082	3*	3	3	3	3

#### Chemical Repellency and Penetration EN 6530

Chemical	MicroMax® NS/TS		MicroMax®		SafeGard® EP		SafeGard® 76		Flashspun PE	
	R	P	R	P	R	P	R	P	R	P
Sulphuric Acid 30% CAS No. 67-64-1	3	3	3	3	3	3	3	3	3	3
Hydrochloric Acid 10% CAS No. 70-05-8	3	3	3	3	3	3	3	3	3	3
O-Xylene CAS No. 75-15-0	3	2	3	2	NT	NT	NT	NT	1	1
Butanol CAS No. 75-09-2	3	2	3	2	NT	NT	NT	NT	2	1

#### Breathability - measured by air permeability and moisture vapour transmission rate (MVTR)

	MicroMax® NS/TS	MicroMax®	SafeGard® EP	SafeGard® 76	Flashspun PE	Cotton T-shirt
Air permeability cubic feet/minute (cfm)	<0.5	<0.5	40	40	~3.3	180
MVTR	119.3	NT	NT	NT	111.2	NT

#### Infectious Agent / Biological Hazard Protection

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Protection against dry microbial contact	ISO 22612:2005	3 (max is 3)	Not recommended	1
Protection against mechanical contact with substances containing contaminated liquids	EN 14126:2003 Annex A	6 (max is 6)	Not recommended	1

#### SafeGard™ EP Styles



**Style code 528**  
Coverall with elasticated hood, cuffs, waist & ankles.

Sizes: S - XXXL



**Style code L528**  
Coverall with elasticated hood, cuffs with thumb loops, waist & ankles.

Sizes: S - XXXL



**Style code 514**  
Coverall with elasticated hood, cuffs, waist and attached socks.

Sizes: S - XXXL



**Style code L514**  
Coverall with elasticated hood, cuffs with thumb loops, waist and attached socks.

Sizes: S - XXXL



**Style code 101**  
Lab coat with two hip pockets. 4 stud fastening.

Sizes: M - XL



**Style code 101Z**  
Lab coat with two hip pockets. Zip fastening.

Sizes: M - XL



**Style code 527**  
Rear entry gown with elasticated sleeves and ties.

Sizes: M - XL



**Style code 024**  
50cm sleeves with elasticated ends.

Size: One size



**Style code 020**  
Cape hood with elasticated face opening.

Size: One size



**Style code 022**  
Standard overshoes with elasticated tops

Size: One size



**Style code 022NS**  
Overshoes with elasticated tops, anti-slip soles.

Size: One size



**Style code 022ANS**  
Overshoes with elasticated tops, anti-static soles.

Size: One size

Available in: White



Blue



Red



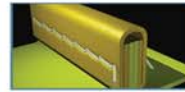
Orange





# SafeGard™ 76

Product code ES428



Stitched & Bound Seams



## Breathable SMMS fabric with stitched and bound seams for superior comfort and protection.

- Constructed with 55gsm 4-layer SMMS fabric – double layer of melt-blown fibre (“MM”) to enhance hazardous dust protection whilst maintaining high comfort level.
- Seams are exterior stitched and bound with coated fabric to improve strength and particle filtration.
- Fabric air-permeability is over 10 times greater than flash-spun polyethylene and microporous film laminated resulting in much higher comfort level for users.
- Lakeland “Super-B” ergonomic styling – unique combination of three design elements to optimise fit, durability and freedom of movement.
- Three piece hood for rounder head shape and greater comfort.
- Inset sleeves – torso shaped to body to maximise freedom of movement and negate the need for thumbloops.
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Flex Cracking	ISO 7854	6	6	6	6	6
Trapezoidal Tear	ISO 9073	3/2	4/2	3	3/2	1
Tensile Strength	EN 13934	2/1	2	3	2/1	1
Puncture Resistance	EN 863	1	1	1	1	2
Burst Strength	ISO 2960	2	3	2	3	2
Seam Strength	ISO 5082	3*	3	3	3	3

### Chemical Repellency and Penetration EN 6530

Chemical	MicroMax® NS/TS		MicroMax®		SafeGard® GP		SafeGard® 76		Flashspun PE	
	R	P	R	P	R	P	R	P	R	P
Sulphuric Acid 30% CAS No. 67-64-1	3	3	3	3	3	3	3	3	3	3
Hydrochloric Acid 10% CAS No. 70-05-8	3	3	3	3	3	3	3	3	3	3
O-Xylene CAS No. 75-15-0	3	2	3	2	NT	NT	NT	NT	1	1
Butanol CAS No. 75-09-2	3	2	3	2	NT	NT	NT	NT	2	1

### Breathability - measured by air permeability and moisture vapour transmission rate (MVTR)

	MicroMax® NS/TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE	Cotton T-shirt
Air permeability cubic feet/minute (cfm)	<0.5	<0.5	40	40	~3.3	180
MVTR	119.3	NT	NT	NT	111.2	NT

### Infectious Agent / Biological Hazard Protection

Tested according to EN 14126. This consists of four different tests to assess protection against different forms of classification. Note these tests are on fabric only. We would always recommend a garment with sealed seams such as MicroMax® TS for protection against infectious agent hazards.

Test Description	Test No.	MicroMax® NS/TS	SafeGard® GP/76	Flashspun PE
Protection against blood and body fluids	ISO 16604:2004	6 (max is 6)	Not recommended	<1
Protection against biologically contaminated aerosols	ISO 22611:2003	3 (max is 3)	Not recommended	1
Protection against dry microbial contact	ISO 22612:2005	3 (max is 3)	Not recommended	1
Protection against mechanical contact with substances containing contaminated liquids	EN 14126:2003 Annex A	6 (max is 6)	Not recommended	1

### SafeGard™ 76 Styles



**Style code 428**  
Coverall with elasticated hood, cuffs, waist & ankles.  
Sizes: S - XXXL



**Style code L428**  
Coverall with elasticated hood, cuffs with thumb loops, waist & ankles.  
Sizes: S - XXXL



**Style code 414**  
Coverall with elasticated hood, cuffs, waist and attached socks.  
Sizes: S - XXXL



**Style code L414**  
Coverall with elasticated hood, cuffs with thumb loops, waist and attached socks.  
Sizes: S - XXXL



**Style code 101**  
Lab coat with two hip pockets. 4 stud fastening.  
Sizes: M - XL



**Style code 101Z**  
Lab coat with two hip pockets. Zip fastening.  
Sizes: M - XL



**Style code 527**  
Rear entry gown with elasticated sleeves and ties.  
Sizes: M - XL



**Style code 024**  
50cm sleeves with elasticated ends.  
Size: One size



**Style code 020**  
Cape hood with elasticated face opening.  
Size: One size



**Style code 022**  
Standard overshoes with elasticated tops  
Size: One size

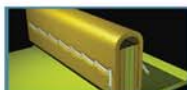
**Style code 022NS**  
Overshoes with elasticated tops, anti-slip soles.  
Size: One size

**Style code 022ANS**  
Overshoes with elasticated tops, anti-static soles.  
Size: One size

Available in: White  Navy blue  Orange

## MicroMax®

Product code EM428



Stitched & Bound Seams



### Unique microporous film laminate with “rip-stop” scrim between layers for added strength and durability.

- Addition of unique scrim results in highest tear strength in its class – tougher and more durable for more demanding environments.
- Stitched and bound exterior seams to enhance strength and particle filtration at seams.
- Soft and flexible high quality microporous film laminate offers excellent combination of protection and comfort.
- High moisture vapour transmission rate allows escape of vapour to maintain comfort.
- Fabric passes all tests in EN 141 26 infectious agent standard. However, we recommend only garments featuring sealed seams such as MicroMax® TS should be used for biological hazards.
- Non-linting film surface combined with taped seams makes MicroMax® ideal for many clean room applications.
- Lakeland “Super-B” ergonomic styling – unique combination of three design elements to optimise fit, durability and freedom of movement.
- Three piece hood for rounder head shape and greater comfort.
- Inset sleeves – torso shaped to body to maximise freedom of movement and negate the need for thumbloops.
- Two piece crotch gusset – enhances freedom of movement and reduced crotch splitting.

#### Physical Properties

Property	EN Std	MicroMax® NS /TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE
		CE Class	CE Class	CE Class	CE Class	CE Class
Abrasion Resistance	EN 530	3	2	3	6	2
Flex Cracking	ISO 7854	6	6	6	6	6
Trapezoidal Tear	ISO 9073	3/2	4/2	3	3/2	1
Tensile Strength	EN 13934	2/1	2	3	2/1	1
Puncture Resistance	EN 863	1	1	1	1	2
Burst Strength	ISO 2960	2	3	2	3	2
Seam Strength	ISO 5082	3*	3	3	3	3

#### Chemical Repellency and Penetration EN 6530

Chemical	MicroMax® NS/TS		MicroMax®		SafeGard® GP		SafeGard® 76		Flashspun PE	
	R	P	R	P	R	P	R	P	R	P
Sulphuric Acid 30% CAS No. 67-64-1	3	3	3	3	3	3	3	3	3	3
Hydrochloric Acid 10% CAS No. 70-05-8	3	3	3	3	3	3	3	3	3	3
O-Xylene CAS No. 75-15-0	3	2	3	2	NT	NT	NT	NT	1	1
Butanol CAS No. 75-09-2	3	2	3	2	NT	NT	NT	NT	2	1

#### Breathability - measured by air permeability and moisture vapour transmission rate (MVTR)

	MicroMax® NS/TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE	Cotton T-shirt
Air permeability cubic feet/minute (cfm)	<0.5	<0.5	40	40	~3.3	180
MVTR	119.3	NT	NT	NT	111.2	NT

#### Infectious Agent / Biological Hazard Protection

Tested according to EN 14126. This consists of four different tests to assess protection against different forms of classification. Note these tests are on fabric only. We would always recommend a garment with sealed seams such as MicroMax® TS for protection against infectious agent hazards.

Test Description	Test No.	MicroMax® NS/TS	SafeGard® GP/76	Flashspun PE
Protection against blood and body fluids	ISO 16604:2004	6 (max is 6)	Not recommended	<1
Protection against biologically contaminated aerosols	ISO 22611:2003	3 (max is 3)	Not recommended	1
Protection against dry microbial contact	ISO 22612:2005	3 (max is 3)	Not recommended	1
Protection against mechanical contact with substances containing contaminated liquids	EN 14126:2003 Annex A	6 (max is 6)	Not recommended	1

#### MicroMax® Styles



**Style code 428**  
Coverall with elasticated hood, cuffs, waist & ankles.

Sizes: S - XXXL



**Style code L428**  
Coverall with elasticated hood, cuffs with thumb loops, waist & ankles.

Sizes: S - XXXL



**Style code 414**  
Coverall with elasticated hood, cuffs, waist and attached socks.

Sizes: S - XXXL

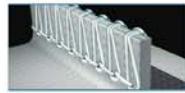


**Style code L414**  
Coverall with elasticated hood, cuffs with thumb loops, waist, ankles and attached socks.

Sizes: S - XXXL

Available in: White

**MicroMax® NS**  
Product code EMN428



Serged (stitched) overlapped seams



**High quality microporous film laminate fabric provides superior liquid resistance against liquids, light oils and light sprays of liquid chemicals.**

- Soft and flexible high quality microporous film laminate offers excellent combination of protection and comfort.
- High moisture vapour transmission rate allows escape of vapour to maintain comfort.
- Available in white and orange
- Fabric passes all testes in EN 14126 infectious agent standard. However, we recommend only garments featuring sealed seams such as MicroMax® TS should be used for biological hazards.
- Lakeland "Super-B" ergonomic styling – unique combination of three design elements to optimise fit, durability and freedom of movement.
- Three piece hood for rounder head shape and greater comfort.
- Inset sleeves – torso shaped to body to maximise freedom of movement and negate the need for thumbloops.
- Two piece crotch gusset – enhances freedom of movement and reduced crotch splitting.

**Physical Properties**

Property	EN Std	MicroMax® NS /TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE
		CE Class	CE Class	CE Class	CE Class	CE Class
Abrasion Resistance	EN 530	3	2	3	6	2
Flex Cracking	ISO 7854	6	6	6	6	6
Trapezoidal Tear	ISO 9073	3/2	4/2	3	3/2	1
Tensile Strength	EN 13934	2/1	2	3	2/1	1
Puncture Resistance	EN 863	1	1	1	1	2
Burst Strength	ISO 2960	2	3	2	3	2
Seam Strength	ISO 5082	3*	3	3	3	3

**Chemical Repellency and Penetration EN 6530**

Chemical	MicroMax® NS/TS		MicroMax®		SafeGard® GP		SafeGard® 76		Flashspun PE	
	R	P	R	P	R	P	R	P	R	P
Sulphuric Acid 30% CAS No. 67-64-1	3	3	3	3	3	3	3	3	3	3
Hydrochloric Acid 10% CAS No. 70-05-8	3	3	3	3	3	3	3	3	3	3
O-Xylene CAS No. 75-15-0	3	2	3	2	NT	NT	NT	NT	1	1
Butanol CAS No. 75-09-2	3	2	3	2	NT	NT	NT	NT	2	1

**Breathability - measured by air permeability and moisture vapour transmission rate (MVTR)**

	MicroMax® NS/TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE	Cotton T-shirt
Air permeability cubic feet/minute (cfm)	<0.5	<0.5	40	40	~3.3	180
MVTR	119.3	NT	NT	NT	111.2	NT

**Infectious Agent / Biological Hazard Protection**

Tested according to EN 14126. This consists of four different tests to assess protection against different forms of classification. Note these tests are on fabric only. We would always recommend a garment with sealed seams such as MicroMax® TS for protection against infectious agent hazards.

Test Description	Test No.	MicroMax® NS/TS	SafeGard® GP/76	Flashspun PE
Protection against blood and body fluids	ISO 16604:2004	6 (max is 6)	Not recommended	<1
Protection against biologically contaminated aerosols	ISO 22611:2003	3 (max is 3)	Not recommended	1
Protection against dry microbial contact	ISO 22612:2005	3 (max is 3)	Not recommended	1
Protection against mechanical contact with substances containing contaminated liquids	EN 14126:2003 Annex A	6 (max is 6)	Not recommended	1

**MicroMax® NS Styles**



**Style code 428**  
Coverall with elasticated hood, cuffs, waist & ankles.

Sizes: S - XXXL



**Style code L428**  
Coverall with elasticated hood, cuffs with thumb loops, waist & ankles.

Sizes: S - XXXL



**Style code 414**  
Coverall with elasticated hood, cuffs, waist and attached socks.

Sizes: S - XXXL



**Style code L414**  
Coverall with elasticated hood, cuffs with thumb loops, waist, ankles and attached socks.

Sizes: S - XXXL



**Style code 412**  
Coverall with collar, elasticated cuffs, thumb loops, waist & ankles.

Sizes: M - XL



**Style code 101**  
Lab coat with two hip pockets. 4 stud fastening.

Sizes: M - XL



**Style code 024**  
50cm sleeves with elasticated ends.

Size: One size



**Style code 020**  
Cape hood with elasticated face opening.

Size: One size



Style code 022 - Standard overshoes with elasticated top  
Style code 022NS - Overshoes with elasticated top, anti-slip sole  
Style code 022ANS - Overshoes with elasticated top, anti-static sole  
Style code 023NS - Overboots with elasticated top, 2 ankle ties and anti-slip sole

Size: One size  
Size: One size  
Size: One size  
Size: One size

Available in: White  Orange  Green

## MicroMax® NS TRINE

Product code EMN428WH



Serged (stitched)  
overlapped  
seams



TYPE 5



TYPE 6



EN 1149-1



35



### Type 5 & 6 protective coverall with protective rear sleeve for harness lanyard.

- Allows harness and lanyard to be worn inside coverall.
- Protects harness and lanyard from damaging liquids, paints and chemicals - reduces costs.
- Lanyard sleeve folds away neatly in rear pouch when not in use.
- Velcro fastened lanyard sleeve for easy fitting.
- Tested at SATRA fall-arrest rig: garment remains intact when a fall incident occurs, maintaining protection for wearer. (See video – use QR code or URL below)
- High quality microporous film laminate fabric - soft, flexible and comfortable to wear.
- Coverall with elasticated hood, waist, wrists and ankles. Fold away lanyard sleeve to rear.
- Improved Super-B style coverall: superior fit, wearability and durability.
- Three-piece hood, inset sleeves and diamond crotch gusset results in best fitting garment on the market.

#### Physical Properties

Property	EN Std	MicroMax® NS/TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE
		CE Class	CE Class	CE Class	CE Class	CE Class
Abrasion Resistance	EN 530	3	2	3	6	2
Flex Cracking	ISO 7854	6	6	6	6	6
Trapezoidal Tear	ISO 9073	3/2	4/2	3	3/2	1
Tensile Strength	EN 13934	2/1	2	3	2/1	1
Puncture Resistance	EN 863	1	1	1	1	2
Burst Strength	ISO 2960	2	3	2	3	2
Seam Strength	ISO 5082	3*	3	3	3	3

#### Chemical Repellency and Penetration EN 6530

Chemical	MicroMax® NS/TS		MicroMax®		SafeGard® GP		SafeGard® 76		Flashspun PE	
	R	P	R	P	R	P	R	P	R	P
Sulphuric Acid 30% CAS No. 67-64-1	3	3	3	3	3	3	3	3	3	3
Hydrochloric Acid 10% CAS No. 70-05-8	3	3	3	3	3	3	3	3	3	3
O-Xylene CAS No. 75-15-0	3	2	3	2	NT	NT	NT	NT	1	1
Butanol CAS No. 75-09-2	3	2	3	2	NT	NT	NT	NT	2	1

#### Breathability - measured by air permeability and moisture vapour transmission rate (MVTR)

	MicroMax® NS/TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE	Cotton T-shirt
Air permeability cubic feet/minute (cfm)	<0.5	<0.5	40	40	~3.3	180
MVTR	119.3	NT	NT	NT	111.2	NT

#### Infectious Agent / Biological Hazard Protection

Tested according to EN 14126. This consists of four different tests to assess protection against different forms of classification. Note these tests are on fabric only. We would always recommend a garment with sealed seams such as MicroMax® TS for protection against infectious agent hazards.

Test Description	Test No.	MicroMax® NS/TS	SafeGard® GP/76	Flashspun PE
Protection against blood and body fluids	ISO 16604:2004	6 (max is 6)	Not recommended	<1
Protection against biologically contaminated aerosols	ISO 22611:2003	3 (max is 3)	Not recommended	1
Protection against dry microbial contact	ISO 22612:2005	3 (max is 3)	Not recommended	1
Protection against mechanical contact with substances containing contaminated liquids	EN 14126:2003 Annex A	6 (max is 6)	Not recommended	1

### MicroMax® NS TRINE Style



**Style Code: EMN428WH**

Coverall with elasticated hood, waist, wrists and ankles. Rear sleeve for fall arrest harness lanyard.

Sizes S - XXXL

Available in: White

MicroMAX® NS TRINE has been tested at the SATRA fall-arrest rig to ensure it stays intact in a fall incident. Use the QR link to watch the video.



[www.lakeland.com/europe/blog/cat/videos/post/mmnstrine/](http://www.lakeland.com/europe/blog/cat/videos/post/mmnstrine/)

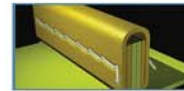
Air permeability is a measure of the fabric's tendency to allow air to pass through and is the best indicator of comfort. The higher the breathability, the better the comfort for the wearer. The results show that fabrics such as Microporous films (MicroMax®) and flashspun polyethylene have very low and very similar levels of breathability; both are as close to zero as makes little practical difference. By contrast SMS fabric (SafeGard) has more than ten times the breathability and a standard cotton T-shirt has four times that of an SMS fabric.

Areas shaded green indicate where MicroMax® is equal to or better than the other fabric options.

\* MicroMax® TS seams are stitched and taped and achieve a seam test result of Class 3

# MicroMax® NS Cool Suit

Product code EMNC428



Stitched & Bound Seams



TYPE 5



TYPE 6



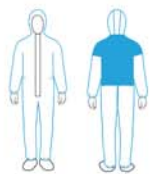
EN 1149-1



## Microporous film laminate Type 5 & 6 protective coverall with breathable rear panel for comfort & bound seams for added protection and durability.

- Superior quality MicroMax® NS microporous film laminated fabric: excellent barrier to light splashes and sprays of liquids covering critical parts of the body.
- Effective barrier against hazardous dusts.
- Breathable SafeGard™ GP rear panel offers air permeability of 43 cubic feet per minute for wearer comfort.
- Bound seams offers additional protection against dust and liquid ingress and superior strength and durability... effective and cost effective.
- Breathable coverall – reduces the “bellows effect” – the tendency to create “sucking” of air and dust particles in through seam holes, cuffs, ankles and zip.
- Combination of blue and white offers distinctive coverall for visibility.
- Lakeland’s “Super-B” style pattern : unique combination of inset sleeves, three-piece hood and “Diamond” crotch gusset – ergonomically designed for superior freedom of movement, comfort and durability.
- Crotch gusset to reduce incidence of burst crotch and improve durability.

### MicroMax® NS Cool Suit Style



**Style Code: EMNC428**  
Coverall with elasticated hood, cuffs, waist and ankles. Breathable rear panel.

Sizes: S - XXXL

**Available in:** White with blue seams and blue rear panel



Air permeability is a measure of the fabric's tendency to allow air to pass through and is the best indicator of comfort. The higher the breathability, the better the comfort for the wearer. The results show that fabrics such as Microporous films (MicroMax®) and flash-spun polyethylene have very low and very similar levels of breathability; both are as close to zero as makes little practical difference. By contrast SMS fabric (SafeGard) has more than ten times the breathability and a standard cotton T-shirt has four times that of an SMS fabric.

Areas shaded green indicate where MicroMax® is equal to or better than the other fabric options.

\* MicroMax® TS seams are stitched and taped and achieve a seam test result of Class 3.

### Physical Properties

Property	EN Std	MicroMax® NS/TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE
		CE Class	CE Class	CE Class	CE Class	CE Class
Abrasion Resistance	EN 530	1	2	3	6	2
Flex Cracking	ISO 7854	6	6	6	6	6
Trapezoidal Tear	ISO 9073	3/2	4/2	3	3/2	1
Tensile Strength	EN 13934	2/1	2	3	2/1	1
Puncture Resistance	EN 863	1	1	1	1	2
Burst Strength	ISO 2960	2	3	2	3	2
Seam Strength	ISO 5082	3*	3	3	3	3

### Chemical Repellency and Penetration EN 6530

Chemical	MicroMax® NS/TS		MicroMax®		SafeGard® GP		SafeGard® 76		Flashspun PE	
	R	P	R	P	R	P	R	P	R	P
Sulphuric Acid 30% CAS No. 67-64-1	3	3	3	3	3	3	3	3	3	3
Hydrochloric Acid 10% CAS No. 70-05-8	3	3	3	3	3	3	3	3	3	3
O-Xylene CAS No. 75-15-0	3	2	3	2	NT	NT	NT	NT	1	1
Butanol CAS No. 75-09-2	3	2	3	2	NT	NT	NT	NT	2	1

### Breathability - measured by air permeability and moisture vapour transmission rate (MVTR)

	MicroMax® NS/TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE	Cotton T-shirt
Air permeability cubic feet/minute (cfm)	<0.5	<0.5	40	40	~3.3	180
MVTR	119.3	NT	NT	NT	111.2	NT

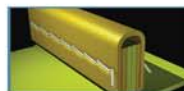
### Infectious Agent / Biological Hazard Protection

Tested according to EN 14126. This consists of four different tests to assess protection against different forms of classification. Note these tests are on fabric only. We would always recommend a garment with sealed seams such as MicroMax® TS for protection against infectious agent hazards.

Test Description	Test No.	MicroMax® NS/TS	SafeGard® GP/76	Flashspun PE
Protection against blood and body fluids	ISO 16604:2004	6 (max is 6)	Not recommended	<1
Protection against biologically contaminated aerosols	ISO 22611:2003	3 (max is 3)	Not recommended	1
Protection against dry microbial contact	ISO 22612:2005	3 (max is 3)	Not recommended	1
Protection against mechanical contact with substances containing contaminated liquids	EN 14126:2003 Annex A	6 (max is 6)	Not recommended	1

## MicroMax® NS Cool Suit Max

Product code EMNCL428WIE



Stitched  
& Bound  
Seams



TYPE 5



TYPE 6



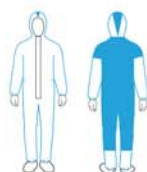
EN 1149-1



Front

Back

### MicroMax® NS Cool Suit Max Style



**Style Code: EMNCL428WIE**

Coverall with elasticated hood, cuffs, waist and ankles. Breathable rear panel, legs and hood.

Sizes: S - XXXL

**Available in:** White with blue seams, blue rear panel, legs and hood.

Air permeability is a measure of the fabric's tendency to allow air to pass through and is the best indicator of comfort. The higher the breathability, the better the comfort for the wearer. The results show that fabrics such as Microporous films (MicroMax®) and flashspun polyethylene have very low and very similar levels of breathability; both are as close to zero as makes little practical difference. By contrast SMS fabric (SafeGard) has more than ten times the breathability and a standard cotton T-shirt has four times that of an SMS fabric.

Areas shaded green indicate where MicroMax® is equal to or better than the other fabric options.

\* MicroMax® TS seams are stitched and taped and achieve a seam test result of Class 3.

### Microporous film laminate Type 5 & 6 protective coverall with breathable back, legs and hood for comfort & bound seams for added protection and durability.

- Superior quality MicroMax® NS microporous film laminated fabric: excellent barrier to light splashes and sprays of liquids covering critical parts of the body.
- Effective barrier against hazardous dusts.
- Breathable SafeGard™ GP rear panel offers air permeability of 43 cubic feet per minute for wearer comfort.
- Bound seams offers additional protection against dust and liquid ingress and superior strength and durability... effective and cost effective.
- Breathable coverall – reduces the “bellows effect” – the tendency to create “sucking” of air and dust particles in through seam holes, cuffs, ankles and zip.
- Combination of blue and white offers distinctive coverall for visibility.
- Lakeland’s “Super-B” style pattern : unique combination of inset sleeves, three-piece hood and “Diamond” crotch gusset – ergonomically designed for superior freedom of movement, comfort and durability.
- Crotch gusset to reduce incidence of burst crotch and improve durability.

#### Physical Properties

Property	EN Std	MicroMax® NS/TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE
		CE Class	CE Class	CE Class	CE Class	CE Class
Abrasion Resistance	EN 530	1	2	3	6	2
Flex Cracking	ISO 7854	6	6	6	6	6
Trapezoidal Tear	ISO 9073	3/2	4/2	3	3/2	1
Tensile Strength	EN 13934	2/1	2	3	2/1	1
Puncture Resistance	EN 863	1	1	1	1	2
Burst Strength	ISO 2960	2	3	2	3	2
Seam Strength	ISO 5082	3*	3	3	3	3

#### Chemical Repellency and Penetration EN 6530

Chemical	MicroMax® NS/TS		MicroMax®		SafeGard® GP		SafeGard® 76		Flashspun PE	
	R	P	R	P	R	P	R	P	R	P
Sulphuric Acid 30% CAS No. 67-64-1	3	3	3	3	3	3	3	3	3	3
Hydrochloric Acid 10% CAS No. 70-05-8	3	3	3	3	3	3	3	3	3	3
O-Xylene CAS No. 75-15-0	3	2	3	2	NT	NT	NT	NT	1	1
Butanol CAS No. 75-09-2	3	2	3	2	NT	NT	NT	NT	2	1

#### Breathability - measured by air permeability and moisture vapour transmission rate (MVTR)

	MicroMax® NS/TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE	Cotton T-shirt
Air permeability cubic feet/minute (cfm)	<0.5	<0.5	40	40	~3.3	180
MVTR	119.3	NT	NT	NT	111.2	NT

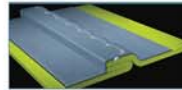
#### Infectious Agent / Biological Hazard Protection

Tested according to EN 14126. This consists of four different tests to assess protection against different forms of classification. Note these tests are on fabric only. We would always recommend a garment with sealed seams such as MicroMax® TS for protection against infectious agent hazards.

Test Description	Test No.	MicroMax® NS/TS	SafeGard® GP/76	Flashspun PE
Protection against blood and body fluids	ISO 16604:2004	6 (max is 6)	Not recommended	<1
Protection against biologically contaminated aerosols	ISO 22611:2003	3 (max is 3)	Not recommended	1
Protection against dry microbial contact	ISO 22612:2005	3 (max is 3)	Not recommended	1
Protection against mechanical contact with substances containing contaminated liquids	EN 14126:2003 Annex A	6 (max is 6)	Not recommended	1

# MicroMax® TS

Product code EMNT428



Stitched & Taped Seams



TYPE 4-B



TYPE 5-B



TYPE 6-B



EN 1073-2



EN 1149-1



EN 14126



## Microporous film laminate fabric with stitched and taped seams for enhanced Type 4 protection

- Addition of taped seams to MicroMax® NS coverall – lightweight and flexible coverall for heavier Type 4 sprays of liquids.
- Fabric passes all tests in the EN 14126 infectious agent standard. Added taped seams makes MicroMax® TS suitable for many medical, pharmaceutical and biological applications.
- Soft and flexible high quality microporous film laminate offers excellent combination of protection and comfort.
- High moisture vapour transmission rate allows escape of vapour to maintain comfort.
- Lakeland “Super-B” ergonomic styling – unique combination of three design elements to optimise fit, durability and freedom of movement.
- Three piece hood for rounder head shape and greater comfort.
- Inset sleeves – torso shaped to body to maximise freedom of movement and negate the need for thumbloops.
- Two piece crotch gusset – enhances freedom of movement and reduced crotch splitting.

### Physical Properties

Property	EN Std	MicroMax® NS/TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE
		CE Class	CE Class	CE Class	CE Class	CE Class
Abrasion Resistance	EN 530	3	2	3	6	2
Flex Cracking	ISO 7854	6	6	6	6	6
Trapezoidal Tear	ISO 9073	3/2	4/2	3	3/2	1
Tensile Strength	EN 13934	2/1	2	3	2/1	1
Puncture Resistance	EN 863	1	1	1	1	2
Burst Strength	ISO 2960	2	3	2	3	2
Seam Strength	ISO 5082	3*	3	3	3	3

### Chemical Repellency and Penetration EN 6530

Chemical	MicroMax® NS/TS		MicroMax®		SafeGard® GP		SafeGard® 76		Flashspun PE	
	R	P	R	P	R	P	R	P	R	P
Sulphuric Acid 30% CAS No. 67-64-1	3	3	3	3	3	3	3	3	3	3
Hydrochloric Acid 10% CAS No. 70-05-8	3	3	3	3	3	3	3	3	3	3
O-Xylene CAS No. 75-15-0	3	2	3	2	NT	NT	NT	NT	1	1
Butanol CAS No. 75-09-2	3	2	3	2	NT	NT	NT	NT	2	1

### Breathability - measured by air permeability and moisture vapour transmission rate (MVTR)

	MicroMax® NS/TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE	Cotton T-shirt
Air permeability cubic feet/minute (cfm)	<0.5	<0.5	40	40	~3.3	180
MVTR	119.3	NT	NT	NT	111.2	NT

### Infectious Agent / Biological Hazard Protection

Tested according to EN 14126. This consists of four different tests to assess protection against different forms of classification. Note these tests are on fabric only. We would always recommend a garment with sealed seams such as MicroMax® TS for protection against infectious agent hazards.

Test Description	Test No.	MicroMax® NS/TS	SafeGard® GP/76	Flashspun PE
Protection against blood and body fluids	ISO 16604:2004	6 (max is 6)	Not recommended	<1
Protection against biologically contaminated aerosols	ISO 22611:2003	3 (max is 3)	Not recommended	1
Protection against dry microbial contact	ISO 22612:2005	3 (max is 3)	Not recommended	1
Protection against mechanical contact with substances containing contaminated liquids	EN 14126:2003 Annex A	6 (max is 6)	Not recommended	1

### MicroMax® TS Style



**Style code 428**  
Coverall with elasticated hood, cuffs, waist & ankles.

Sizes: S - XXXL



**Style code L428**  
Coverall with elasticated hood, cuffs with thumb loops, waist & ankles.

Sizes: S - XXXL



**Style code 414**  
Coverall with elasticated hood, cuffs, waist and attached socks.

Sizes: S - XXXL



**Style code L414**  
Coverall with elasticated hood, cuffs with thumb loops, waist and attached socks.

Sizes: S - XXXL



**Style code 412**  
Coverall with collar, elasticated cuffs, thumb loops, waist & ankles.

Sizes: M - XL



**Style code 101**  
Lab coat with two hip pockets, 4 stud fastening.

Sizes: M - XL



**Style code 024**  
50cm sleeves with elasticated ends.

Size: One size



**Style code 020**  
Cape hood with elasticated face opening.

Size: One size



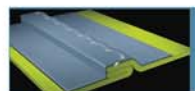
**Style code 022** - Standard overshoes with elasticated top  
**Style code 022NS** - Overshoes with elasticated top, anti-slip sole  
**Style code 022ANS** - Overshoes with elasticated top, anti-static sole  
**Style code 023NS** - Overboots with elasticated top, 2 ankle ties and anti-slip sole

Size: One size  
Size: One size  
Size: One size  
Size: One size

Available in: White

## MicroMax® TS Cool Suit

Product code EMNTC428



Stitched & Taped Seams



TYPE 4-B



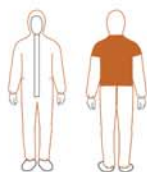
EN 1073-2



EN 14126



### MicroMax® TS Cool Suit Style



**Style Code: EMNTC428**  
Coverall with elasticated hood, cuffs, waist and ankles. Breathable rear panel.

Sizes: S - XXXL

**Available in:** White with orange seams and rear panel



### Microporous film laminate coverall with taped seams and covered breathable rear panel.

- MicroMax® TS version of the Cool Suit for enhanced, lightweight Type 4 comfort.
- Breathable and comfortable Type 4 protection.
- Critical garment areas – the torso front, arms legs and hood use MicroMax® NS fabric and taped seams for superior protection
- Rear breathable panel is covered by a flap of MicroMax® NS fabric – sealed at top and sides.
- Lower panel edge left open to allow circulations of air inside & out
- White with orange rear panel and taped seams for easy identification.
- Lakeland “Super-B” ergonomic styling – unique combination of three design elements to optimise fit, durability and freedom of movement.
- Three piece hood for rounder head shape and greater comfort.
- Inset sleeves – torso shaped to body to maximise freedom of movement and negate the need for thumbloops.
- Two piece crotch gusset – enhances freedom of movement and reduced crotch splitting.

#### Physical Properties

Property	EN Std	MicroMax® NS/TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE
		CE Class	CE Class	CE Class	CE Class	CE Class
Abrasion Resistance	EN 530	3	2	3	6	2
Flex Cracking	ISO 7854	6	6	6	6	6
Trapezoidal Tear	ISO 9073	3/2	4/2	3	3/2	1
Tensile Strength	EN 13934	2/1	2	3	2/1	1
Puncture Resistance	EN 863	1	1	1	1	2
Burst Strength	ISO 2960	2	3	2	3	2
Seam Strength	ISO 5082	3*	3	3	3	3

#### Chemical Repellency and Penetration EN 6530

Chemical	MicroMax® NS/TS		MicroMax®		SafeGard® GP		SafeGard® 76		Flashspun PE	
	R	P	R	P	R	P	R	P	R	P
Sulphuric Acid 30% CAS No. 67-64-1	3	3	3	3	3	3	3	3	3	3
Hydrochloric Acid 10% CAS No. 70-05-8	3	3	3	3	3	3	3	3	3	3
O-Xylene CAS No. 75-15-0	3	2	3	2	NT	NT	NT	NT	1	1
Butanol CAS No. 75-09-2	3	2	3	2	NT	NT	NT	NT	2	1

#### Breathability - measured by air permeability and moisture vapour transmission rate (MVTR)

	MicroMax® NS/TS	MicroMax®	SafeGard® GP	SafeGard® 76	Flashspun PE	Cotton T-shirt
Air permeability cubic feet/minute (cfm)	<0.5	<0.5	40	40	~3.3	180
MVTR	119.3	NT	NT	NT	111.2	NT

#### Infectious Agent / Biological Hazard Protection

Tested according to EN 14126. This consists of four different tests to assess protection against different forms of classification. Note these tests are on fabric only. We would always recommend a garment with sealed seams such as MicroMax® TS for protection against infectious agent hazards.

Test Description	Test No.	MicroMax® NS/TS	SafeGard® GP/76	Flashspun PE
Protection against blood and body fluids	ISO 16604:2004	6 (max is 6)	Not recommended	<1
Protection against biologically contaminated aerosols	ISO 22611:2003	3 (max is 3)	Not recommended	1
Protection against dry microbial contact	ISO 22612:2005	3 (max is 3)	Not recommended	1
Protection against mechanical contact with substances containing contaminated liquids	EN 14126:2003 Annex A	6 (max is 6)	Not recommended	1



# Pyrolon™ Plus 2

Product code EPW428



Serged (stitched) overlapped seams



TYPE 5



TYPE 6



EN 1073-2



EN 1149-1



EN ISO 14116 (Index 1)



## Flame retardant Type 5 & 6 breathable coverall

- Pyrolon garments meet the requirements of EN 14116 (Index 1) for garment for protection against flames and heat.
- Fabric will not ignite, chars at low temperature and unlike standard disposables does not continue burning after the ignition source is withdrawn.
- Can safely be used over thermal protective garments without compromising thermal protection.
- Note that Pyrolon™ Plus 2 fabric will not ignite but is designed to wear OVER thermal protective garments and will not provide heat protection if worn alone.
- Intrinsic anti-static properties with very low surface resistance; anti-static does not wear off in use like standard disposables.
- Lakeland "Super-B" ergonomic styling – unique combination of three design elements to optimise fit, durability and freedom of movement.
- Three piece hood for rounder head shape and greater comfort.
- Inset sleeves – torso shaped to body to maximise freedom of movement and negate the need for thumbloops.
- Two piece crotch gusset – enhances freedom of movement and reduced crotch splitting.

### Physical Properties

Property	EN Std	Pyrolon™ Plus 2	Pyrolon™ XT	FR SMS Brand A	FR SMS Brand B
		CE Class	CE Class	CE Class	CE Class
Abrasion Resistance	EN 530	3	2	2	1
Flex Cracking	ISO 7854	6	6	6	5
Trapezoidal Tear	ISO 9073	2	4/3	2	1
Tensile Strength	EN 13934	2/1	3/2	1	1
Puncture Resistance	EN 863	2	2	1	1
Burst Strength	ISO 2960	3	2	n/a	n/a
Seam Strength	ISO 5082	2	3	3	2

### Chemical Repellency and Penetration EN 6530

Chemical	Pyrolon™ Plus 2		Pyrolon™ XT		FR SMS Brand A		FR SMS Brand B	
	R	P	R	P	R	P	R	P
Sulphuric Acid 30% CAS No. 67-64-1	2	3	3	3	3	3	3	3
Hydrochloric Acid 10% CAS No. 70-05-8	3	3	3	2	3	3	3	3
O-Xylene CAS No. 75-15-0	NT	NT	NT	NT	n/a	n/a	n/a	n/a
Butanol CAS No. 75-09-2	NT	NT	NT	NT	n/a	n/a	n/a	n/a

**Note:-**

Columns 3 and 4 contain comparative data for two commonly available FR SMS-based garment brands. The tests show that in most cases the Lakeland Pyrolon™ options feature superior properties.

However, whereas thermal mannequin testing to show predicted body burn when worn over a thermal protecting EN 11612 garment has been conducted on Pyrolon™, no such testing is available from the manufacturers of Brands A and B. Lakeland has conducted such testing for comparison purposes. The results are shown below:-

### Thermal Mannequin Testing

	FSPE	Standard SMS	FR SMS	Pyrolon™ Plus 2	Pyrolon™ XT
Total % predicted body burn	23.9%	20.5%	19.6%	7.4%	8.2%
2nd degree burns	15.6%	12.8%	14.7%	7.4%	8.2%
3rd degree burns	8.3%	7.7%	4.9%	0%	0%

**Note:-**

1. The predicted body burn performance shows little difference between FSPE, Standard SMS and FR SMS with total body burn being close to 20% and including 3rd degree body burns of 5 to 8%.
2. The total predicted body burn for Pyrolon™ products is much lower at 7 to 8% with no 3rd degree burns apparent.
3. This proves both that Pyrolon™ products show a superior FR performance when worn over EN 11612 protective garments and that the additional cost of FR SMS garments over Standard SMS garments results in very little improvement in FR performance.

## Pyrolon® Plus 2 Style



**Style Code: EPW428**  
Coverall with elasticated hood, cuffs, waist and ankles.

Sizes: S - XXXL

Available in: White

## Pyrolon™ XT

Product code EX428



Serged (stitched)  
overlapped  
seams



TYPE 5



TYPE 6



EN 1073-2



EN 1149-1



EN ISO 14116  
2003 100%



### Flame retardant Type 5 & 6 breathable coverall

- Pyrolon garments meet the requirements of EN 14116 (Index 1) for garment for protection against flames and heat.
- Includes nylon scrim which improves strength and durability..
- Fabric will not ignite, chars at low temperature and unlike standard disposables does not continue burning after the ignition source is withdrawn.
- Can safely be used over thermal protective garments without compromising thermal protection.
- Note that Pyrolon™ XT fabric will not ignite but is designed to wear OVER thermal protective garments and will not provide heat protection if worn alone.
- Intrinsic anti-static properties with very low surface resistance; anti-static does not wear off in use like standard disposables.
- Lakeland "Super-B" ergonomic styling – unique combination of three design elements to optimise fit, durability and freedom of movement.
- Three piece hood for rounder head shape and greater comfort.
- Inset sleeves – torso shaped to body to maximise freedom of movement and negate the need for thumbloops.
- Two piece crotch gusset – enhances freedom of movement and reduced crotch splitting.

#### Physical Properties

Property	EN Std	Pyrolon™ Plus 2	Pyrolon™ XT	FR SMS Brand A	FR SMS Brand B
		CE Class	CE Class	CE Class	CE Class
Abrasion Resistance	EN 530	3	2	2	1
Flex Cracking	ISO 7854	6	6	6	5
Trapezoidal Tear	ISO 9073	2	4/3	2	1
Tensile Strength	EN 13934	2/1	3/2	1	1
Puncture Resistance	EN 863	2	2	1	1
Burst Strength	ISO 2960	3	2	n/a	n/a
Seam Strength	ISO 5082	2	3	3	2

#### Pyrolon™ XT Styles



**Style code 428**  
Coverall with elasticated hood, cuffs, waist & ankles.

Sizes: S - XXXL



**Style code 101**  
Lab coat with two hip pockets, 4 stud fastening.

Sizes: M - XL



**Style code 514**  
Jacket with elasticated cuffs.

Sizes: S - XXXL



**Style code 016**  
Trousers with elasticated waist.

Sizes: S - XXXL



**Style code 019**  
Rear entry gown with elasticated cuffs.

Sizes: M - XL



**Style code 022NS**  
Overshoes with anti-slip soles.

Size: One size



**Style code 023NS**  
Overboots with anti-slip soles and ties.

Size: One size

Available in: Pale blue

#### Chemical Repellency and Penetration EN 6530

Chemical	Pyrolon™ Plus 2		Pyrolon™ XT		FR SMS Brand A		FR SMS Brand B	
	R	P	R	P	R	P	R	P
Sulphuric Acid 30% CAS No. 67-64-1	2	3	3	3	3	3	3	3
Hydrochloric Acid 10% CAS No. 70-05-8	3	3	3	2	3	3	3	3
O-Xylene CAS No. 75-15-0	NT	NT	NT	NT	n/a	n/a	n/a	n/a
Butanol CAS No. 75-09-2	NT	NT	NT	NT	n/a	n/a	n/a	n/a

#### Note:-

Columns 3 and 4 contain comparative data for two commonly available FR SMS-based garment brands. The tests show that in most cases the Lakeland Pyrolon™ options feature superior properties.

However, whereas thermal mannequin testing to show predicted body burn when worn over a thermal protecting EN 11612 garment has been conducted on Pyrolon™, no such testing is available from the manufacturers of Brands A and B. Lakeland has conducted such testing for comparison purposes. The results are shown below:-

#### Thermal Mannequin Testing

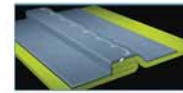
	FSPE	Standard SMS	FR SMS	Pyrolon™ Plus 2	Pyrolon™ XT
Total % predicted body burn	23.9%	20.5%	19.6%	7.4%	8.2%
2nd degree burns	15.6%	12.8%	14.7%	7.4%	8.2%
3rd degree burns	8.3%	7.7%	4.9%	0%	0%

#### Note:-

1. The predicted body burn performance shows little difference between FSPE, Standard SMS and FR SMS with total body burn being close to 20% and including 3rd degree body burns of 5 to 8%.
2. The total predicted body burn for Pyrolon™ products is much lower at 7 to 8% with no 3rd degree burns apparent.
3. This proves both that Pyrolon™ products show a superior FR performance when worn over EN 11612 protective garments and that the additional cost of FR SMS garments over Standard SMS garments results in very little improvement in FR performance.

EPVC

Product code EPVC



Stitched & Taped Seams



TYPE 3



TYPE 4



PVC Re-usable Type 3/4 Chemical Coverall.



Double storm flap with velcro and zipper closure.



Drawstring on bottom of Jacket for adjustment.

FEATURES

- Protection against splashes and sprays of chemicals.
- Re-usable.
- Exceptional comfort with good durability.
- Suitable for wet environments.

KEY APPLICATIONS

- Petrochemical plant applications.
- Tank cleaning and liquid chemical storage vessel cleaning.
- Agricultural spraying and agricultural chemical applications.
- Acid and Alkali handling.

EPVC Styles



Style code 428

Zipper, attached hood, elastic wrist and ankle, with zip flap.

Sizes: S - XXXL



Style code JT02

Zipper, attached hood, elastic wrist.



Style code TS02

Bib Pants.

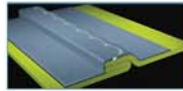
Available in: Yellow



Items	Standards	Results
Weight	-	284g/m <sup>2</sup>
Thick	-	0.4mm
Abrasion resistance	EN530	class 6
Puncture resistance	EN863	class 2
Burst resistance (Pa)	ISO2960	class 3
Flex cracking resistance	ISO7854	class 6
Tear resistance (MD/CD)	ISO9073	class 2/2

# Cool Suit® Advance Plus

Product code CT1SCF428



Stitched & Taped Seams



TYPE 4-B



TYPE 5-B



TYPE 6-B



EN 1073-2



EN 1149-1



EN 14126



## An application specifying a Type 4 application allows selection of more comfortable options such as Cool Suit® - 78gsm (main fabric)

- The Cool Suit® Advance Plus principle uses the main chemical protective coverall fabric for the garment and includes a breathable back covered by a flap sealed at top and sides.
- The innovative design allows circulation of air into the suit - enhanced by wearer movement - to radically improve comfort yet maintain protection against Type 4 liquid sprays.
- ChemMax® Cool Suit Advance Plus is primarily made as a ChemMax® 1 coverall but can be made in any Lakeland fabric on request.
- Improved Super-B style coverall: superior fit, wearability and durability.
- Three-piece hood, inset sleeves and diamond crotch gusset results in best fitting garment on the market.
- New design three-piece hood with tapered centre piece for superior face and respirator mask fit.
- New higher neck and zip flaps for improved face/neck protection.

### Physical Properties

Property	EN Standard	Cool Suit® Advance Plus	Brand A	Brand B
		CE Class	CE Class	CE Class
Abrasion Resistance	EN 530	2	5	3
Flex Cracking	ISO 7854	1	3	6
Trapezoidal Tear	ISO 9073	3	1	2
Tensile Strength	EN 13934	3	3	2
Puncture Resistance	EN 863	2	2	2
Burst Strength	ISO 2960	1	n/a	2
Seam Strength	ISO 5082	3	4	4

Physical data above refers to the main garment fabric and not the breathable rear panel.

### Permeation Test Data \*

For information on permeation data for ChemMax® 1 fabric refer to the ChemMax® 1 product page. For "Safe Use Time" log on to [www.lakeland-permasure.com](http://www.lakeland-permasure.com)

Areas shaded green indicate where Cool Suit® Advance Plus is either equal to or better than the equivalent brand E, F and G products.

### Cool Suit® Advance Plus Style



**Style code 428**

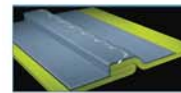
Coverall with hood, cuffs, waist & ankles. Double front zip fastening

Breathable back panel

Sizes: S - XXXL

Available in: Yellow with green seams and back panel





Stitched & Taped Seams



**Lightweight Type 3 & 4 coverall designed for agricultural and industrial spray cleaning applications - 63gsm.**

- HDPE film co-extruded with spunbond PP
- Lightweight Type 3/4 coverall designed for agricultural and industrial spray cleaning applications.
- Very soft, flexible and lightweight fabric for superior comfort.
- Very low noise level for increased comfort.
- Pale green colour - ideal for public operations
- Improved Super-B style coverall: superior fit, wearability and durability.
- Three-piece hood, inset sleeves and diamond crotch gusset results in best fitting garment on the market.
- New design three-piece hood with tapered centre piece for superior face and respirator mask fit.
- New higher neck and zip flaps for improved face/neck protection.
- Double zip & storm flap front fastening for safe and secure protection.

TomTex® Styles

**Style code 428**  
Coverall with hood, cuffs, waist & ankles. Double front zip fastening, cushioned kneepads.  
Sizes: S - XXXL

**Style code L428**  
Coverall with elasticated hood, cuffs, waist & ankles. Double front zip fastening, cushioned kneepads, thumb loops.  
Sizes: S - XXXL

**Style code 430**  
Coverall "Plus" version with attached feet/ boot flap and double cuffs.  
Sizes: S - XXXL

**Style code 430G**  
Coverall with hood and attached feet. Double zip/ storm flap, double cuff with attached gloves(1) using Push-Lock(2) connection system.  
Sizes: S - XXXL  
(1) See page 46 for specification  
(2) See page 32 for detail

**Style code 527**  
Smock / Gown with rear entry / ties and elasticated cuffs.  
Sizes: M - XL

**Style code 025**  
Apron with ties.  
Sizes: M - XL

**Style code 024**  
Sleeves.  
Size: One size

**Style code 023NS**  
Overboots with antislip sole.  
Sizes: L - XL

**Style code 021**  
Cape hood with rear inlet pigtail.  
Size: One size

Available in: Pale Green ■

Physical Properties				
		TomTex®	Brand A	Brand B
Property	En Standard	CE Class	CE Class	CE Class
Abrasion Resistance	EN 530	2	5	3
Flex Cracking	ISO 7854	3	3	6
Trapezoidal Tear	ISO 9073	3	1	2
Tensile Strength	EN 13934	2	3	2
Puncture Resistance	EN 863	1	2	2
Burst Strength	ISO 2960	3	NA	2
Seam Strength	ISO 5082	3	4	4

Permeation Test Data \*

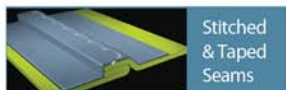
Liquid chemicals from EN 6529 Annex A. For a full list of chemicals tested see Permeation Data Tables or Chemical Search at [www.lakeland.com/europe](http://www.lakeland.com/europe). Tested at saturation unless stated.

		TomTex®	Brand A	Brand B
Chemical	CAS No.	CE Class	CE Class	CE Class
Acetone	67-64-1	NT	NT	1
Acetonitrile	70-05-8	NT	NT	Imm
Carbon Disulphide	75-15-0	NT	NT	Imm
Dichloromethane	75-09-2	NT	NT	Imm
Diethylamine	209-89-7	NT	NT	Imm
Ethyl Acetate	141-78-6	NT	NT	Imm
n-Hexane	110-54-3	NT	NT	Imm
Methanol	67-56-1	NT	NT	6
Sodium Hydroxide (30%)	1310-73-2	6	6	6
Sulphuric Acid (96%)	7664-93-9	6	6	6
Tetrahydrofuran	109-99-9	NT	NT	Imm
Toluene	95-47-6	NT	NT	Imm

\* NB = normalised breakthrough. This is the time taken for the PERMEATION RATE to reach 1.0µg/minute/cm² in controlled laboratory conditions at 23°C. It is NOT the point at which breakthrough first occurs. For "Safe Use Time" log on to [www.lakeland-permasure.com](http://www.lakeland-permasure.com)

Areas shaded green indicate where TomTex® is either equal to or better than the equivalent brand A and B products.

**ChemMax® 1**  
Product code CT15428



## Lightweight coverall for Type 3 & 4 protection against a wide range of chemicals - 78gsm.

- Very lightweight, soft and flexible fabric.
- Low noise level - improved comfort and safety
- Very cost effective Type 3 & 4 chemical protection.
- Infectious Agent Barrier - passes at highest classes in all four EN 14126 bio-hazard tests (version used extensively by UK Government health workers in 2015 West African Ebola Crisis).
- Cushioned double-layer knee pads for increased comfort and safety.
- Improved Super-B style coverall: superior fit, wearability and durability.
- Three-piece hood, inset sleeves and diamond crotch gusset results in best fitting garment on the market.
- New design three-piece hood with tapered centre piece for superior face and respirator mask fit.
- New higher neck and zip flaps for improved face/neck protection.
- Double zip & storm flap front fastening for safe and secure protection.

### Physical Properties

Property	EN Standard	ChemMax® 1	Brand A	Brand B
		CE Class	CE Class	CE Class
Abrasion Resistance	EN 530	2	5	3
Flex Cracking	ISO 7854	1	3	6
Trapezoidal Tear	ISO 9073	3	1	2
Tensile Strength	EN 13934	3	3	2
Puncture Resistance	EN 863	2	2	2
Surface Resistivity	EN 1149	Pass	Pass	Pass
Seam Strength	ISO 5082	170N	>125N	>125N

### Permeation Test Data \*

Liquid chemicals from EN 6529 Annex A. For a full list of chemicals tested see Permeation Data Tables or Chemical Search at [www.lakeland.com/europe](http://www.lakeland.com/europe). Tested at saturation unless stated.

Chemical	CAS No.	ChemMax® 1	Brand A	Brand B
		CE Class	CE Class	CE Class
Acetone	67-64-1	NT	NT	1
Acetonitrile	70-05-8	NT	NT	Imm
Carbon Disulphide	75-15-0	NT	NT	Imm
Dichloromethane	75-09-2	NT	NT	Imm
Diethylamine	209-89-7	3	NT	Imm
Ethyl Acetate	141-78-6	NT	NT	Imm
n-Hexane	110-54-3	Imm	NT	Imm
Methanol	67-56-1	Imm	NT	6
Sodium Hydroxide (30%)	1310-73-2	6	6	6
Sulphuric Acid (96%)	7664-93-9	6	6	6
Tetrahydrofuran	109-99-9	NT	NT	Imm
Toluene	95-47-6	NT	NT	Imm

\* NB = normalised breakthrough. This is the time taken for the PERMEATION RATE to reach 1.0µg/minute/cm<sup>2</sup> in controlled laboratory conditions at 23°C. It is NOT the point at which breakthrough first occurs. For "Safe Use Time" log on to [www.lakeland-permasure.com](http://www.lakeland-permasure.com)

Areas shaded green indicate where ChemMax® 1 is either equal to or better than the equivalent brand A and B products.

### ChemMax® 1 Styles



**Style code 428**  
Coverall with hood, cuffs, waist & ankles. Double front zip fastening, cushioned kneepads

Sizes: S - XXXL



**Style code L428**  
Coverall with elasticated hood, cuffs, waist & ankles. Double front zip fastening, cushioned kneepads, thumb loops.

Sizes: S - XXXL



**Style code 430**  
Coverall "Plus" version with attached feet/boot flap and double cuffs.

Sizes: S - XXXL



**Style code 430G**  
Coverall with hood and attached feet. Double zip/storm flap, double cuff with attached gloves(1) using Push-Lock(2) connection system.

Sizes: S - XXXL

(1) See page 46 for specification  
(2) See page 32 for detail



**Style code 527**  
Smock / Gown with rear entry / ties and elasticated cuffs  
Sizes: M - XL



**Style code 025**  
Apron with ties  
Sizes: M - XL



**Style code 024**  
Sleeves  
Size: One size



**Style code 023NS**  
Overboots with anti-slip sole  
Sizes: L - XL

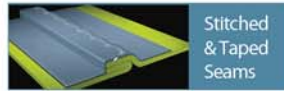


**Style code 021**  
Cape hood with rear inlet pigtail  
Size: One size

Available in: Yellow  Green

**ChemMax® 2**

Product code CT2S428



Stitched & Taped Seams



**Proprietary established chemical barrier film laminated to spunbond PP substrate -135gsm.**

- Extremely soft and flexible compared to coveralls offering similar protection level.
- White with grey seams for easy identification & high visibility.
- Low noise level - improved comfort and safety.
- Low price compared to other coveralls offering similar protection.
- Permeation testing achieves similar or better result on 66% of 100 chemicals tested compared to more expensive competitors.
- Cushioned double-layer knee pads for increased comfort and safety.
- Improved Super-B style coverall: superior fit, wearability and durability.
- Three-piece hood, inset sleeves and diamond crotch gusset results in best fitting garment on the market.
- New design three-piece hood with tapered centre piece for superior face and respirator mask fit.
- New higher neck and zip flaps for improved face/neck protection.
- Double zip & storm flap front fastening for safe and secure protection.

**Physical Properties**

Property	EN Standard	ChemMax® 2	Brand C	Brand D
		CE Class	CE Class	CE Class
Abrasion Resistance	EN 530	6	6	6
Flex Cracking	ISO 7854	6	1	5
Trapezoidal Tear	ISO 9073	5	2	3
Tensile Strength	EN 13934	3	3	2
Puncture Resistance	EN 863	2	2	2
Burst Strength	ISO 2960	2	NA	2
Seam Strength	ISO 5082	4	4	4

**Permeation Test Data \***

Liquid chemicals from EN 6529 Annex A. For a full list of chemicals tested see Permeation Data Tables or Chemical Search at [www.lakeland.com/europe](http://www.lakeland.com/europe). Tested at saturation unless stated.

Chemical	CAS No.	ChemMax® 2	Brand C	Brand D
		CE Class	CE Class	CE Class
Acetone	67-64-1	6	6	6
Acetonitrile	70-05-8	6	6	6
Carbon Disulphide	75-15-0	Imm	6	Imm
Dichloromethane	75-09-2	Imm	Imm	Imm
Diethylamine	209-89-7	NT	6	Imm
Ethyl Acetate	141-78-6	6	6	6
n-Hexane	110-54-3	6	6	6
Methanol	67-56-1	6	6	6
Sodium Hydroxide (30%)	1310-73-2	6	NA	6
Sulphuric Acid (96%)	7664-93-9	6	6	6
Tetrahydrofuran	109-99-9	3	6	6
Toluene	95-47-6	Imm	6	6

\* NB = normalised breakthrough. This is the time taken for the PERMEATION RATE to reach 1.0µg/minute/cm² in controlled laboratory conditions at 23°C. It is NOT the point at which breakthrough first occurs. For "Safe Use Time" log on to [www.lakeland-permasure.com](http://www.lakeland-permasure.com)

Areas shaded green indicate where ChemMax® 2 is either equal to or better than the equivalent brand C and D products.

**ChemMax® 2 Styles**



**Style code 428**  
Coverall with hood, cuffs, waist & ankles. Double front zip fastening, cushioned kneepads

Sizes: S - XXXL



**Style code L428**  
Coverall with elasticated hood, cuffs, waist & ankles. Double front zip fastening, cushioned kneepads, thumb loops.

Sizes: S - XXXL



**Style code 430**  
Coverall "Plus" version with attached feet/boot flap and double cuffs.

Sizes: S - XXXL



**Style code 430G**  
Coverall with hood and attached feet. Double zip/storm flap, double cuff with attached gloves(1) using Push-Lock®(2) connection system.

Sizes: S - XXXL

(1) See page 46 for specification  
(2) See page 32 for detail



**Style code 527**  
Smock / Gown with rear entry / ties and elasticated cuffs  
Sizes: M - XL



**Style code 025**  
Apron with ties  
Sizes: M - XL



**Style code 024**  
Sleeves  
Size: One size



**Style code 023NS**  
Overboots with anti-slip sole  
Sizes: L - XL



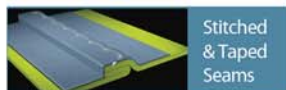
**Style code 021**  
Cape hood with rear inlet pigtail  
Size: One size

Available in: White with grey seams



## ChemMax® 3

Product code CT3S428



Stitched & Taped Seams



TYPE 3-B



TYPE 4-B



TYPE 5-B



TYPE 6-B



EN 1073-2



EN 1149-1



EN 14126



### Superior multi-layer barrier films laminated to spunbond PP substrate - 170gsm.

- Extruded fabric construction. Results in smoother and more consistent fabric than bonded or glued competitors.
- Superior softness and flexibility and more consistent chemical barrier (no 'pinching' or thinner bond points as seen in competitor fabrics).
- European manufactured fabric, tested against a full range of chemical warfare agents for anti-terror and civil defence operations.
- Very low noise level. Safer and improved comfort.
- Cushioned double-layer knee pads for increased comfort and safety.
- Improved Super-B style coverall: superior fit, wearability and durability.
- Three-piece hood, inset sleeves and diamond crotch gusset results in best fitting garment on the market.
- New design three-piece hood with tapered centre piece for superior face and respirator mask fit.
- New higher neck and zip flaps for improved face/neck protection.
- Double zip & storm flap front fastening for safe and secure protection.

#### Physical Properties

Property	EN Standard	ChemMax® 2	Brand C	Brand D
		CE Class	CE Class	CE Class
Abrasion Resistance	EN 530	2	6	6
Flex Cracking	ISO 7854	4	1	5
Trapezoidal Tear	ISO 9073	4	2	3
Tensile Strength	EN 13934	2	3	2
Puncture Resistance	EN 863	2	2	2
Burst Strength	ISO 2960	2	NA	2
Seam Strength	ISO 5082	4	4	4

#### Permeation Test Data \*

Liquid chemicals from EN 6529 Annex A. For a full list of chemicals tested see Permeation Data Tables or Chemical Search at [www.lakeland.com/europe](http://www.lakeland.com/europe). Tested at saturation unless stated.

Chemical	CAS No.	ChemMax® 3	Brand C	Brand D
		CE Class	CE Class	CE Class
Acetone	67-64-1	6	6	6
Acetonitrile	70-05-8	6	6	6
Carbon Disulphide	75-15-0	6	6	Imm
Dichloromethane	75-09-2	6	Imm	Imm
Diethylamine	209-89-7	NT	6	Imm
Ethyl Acetate	141-78-6	6	6	6
n-Hexane	110-54-3	6	6	6
Methanol	67-56-1	6	6	6
Sodium Hydroxide (30%)	1310-73-2	6	NA	6
Sulphuric Acid (96%)	7664-93-9	6	6	6
Tetrahydrofuran	109-99-9	6	6	6
Toluene	95-47-6	6	6	6

\* NB = normalised breakthrough. This is the time taken for the PERMEATION RATE to reach 1.0µg/minute/cm² in controlled laboratory conditions at 23°C. It is NOT the point at which breakthrough first occurs. For "Safe Use Time" log on to [www.lakeland-permeasure.com](http://www.lakeland-permeasure.com)

Areas shaded green indicate where ChemMax® 3 is either equal to or better than the equivalent brand C and D products.

#### ChemMax® 3 Styles



**Style code 428**  
Coverall with hood, cuffs, waist & ankles. Double front zip fastening, cushioned kneepads

Sizes: S - XXXL



**Style code L428**  
Coverall with elasticated hood, cuffs, waist & ankles. Double front zip fastening, cushioned kneepads, thumb loops.

Sizes: S - XXXL



**Style code 430**  
Coverall "Plus" version with attached feet/boot flap and double cuffs.

Sizes: S - XXXL



**Style code 430G**  
Coverall with hood and attached feet. Double zip/storm flap, double cuff with attached gloves(1) using Push-Lock(2) connection system.

Sizes: S - XXXL  
(1) See page 46 for specification  
(2) See page 32 for detail



**Style code 527**  
Smock/ Gown with rear entry / ties and elasticated cuffs  
Sizes: M - XL



**Style code 025**  
Apron with ties  
Sizes: M - XL



**Style code 024**  
Sleeves  
Size: One size



**Style code 023NS**  
Overboots with anti-slip sole  
Sizes: L - XL



**Style code 021**  
Cape hood with rear inlet pigtail  
Size: One size

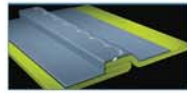
Level B Encapsulated Positive Pressure Non -Gas Tight Suits for SCBA (Inside/Outside option) are also available on request.

Available in: Grey Orange



**ChemMax® 4**

Product code CT4S428



Stitched & Taped Seams



TYPE 3-B



TYPE 4-B



TYPE 5-B



TYPE 6-B



EN 1073-2



EN 14126



**Superior multi-layer barrier films laminated to spunbond PP substrate - 190gsm.**

- Extruded fabric construction. Results in smoother and more consistent fabric than bonded or glued competitors.
- Superior softness and flexibility and more consistent chemical barrier (no 'pinching' or thinner bond points as seen in competitor fabrics).
- European manufactured fabric. Tested against a full range of chemical warfare agents for anti-terror and civil defence operations.
- Very soft and flexible materials for enhanced comfort.
- Cushioned double-layer knee pads for increased comfort and safety.
- Improved Super-B style coverall: superior fit, wearability and durability.
- Three-piece hood, inset sleeves and diamond crotch gusset results in best fitting garment on the market.
- New design three-piece hood with tapered centre piece for superior face and respirator mask fit.
- New higher neck and zip flaps for improved face/neck protection.
- Double zip & storm flap front fastening for safe and secure protection.

**Physical Properties**

Property	EN Std	Brand C	Brand D	ChemMax® 4	Brand E	Brand F
		CE Class	CE Class	CE Class	CE Class	CE Class
Abrasion Resistance	EN 530	6	6	6	6	6
Flex Cracking	ISO 7854	1	5	2	1	1
Trapezoidal Tear	ISO 9073	2	3	6	5	3
Tensile Strength	EN 13934	3	2	4	4	4
Puncture Resistance	EN 863	2	2	2	2	2
Burst Strength	ISO 2960	NA	2	4	NA	NA
Seam Strength	ISO 5082	4	4	TBA	5	5

**Permeation Test Data \***

Liquid chemicals from EN 6529 Annex A. For a full list of chemicals tested see Permeation Data Tables or Chemical Search at [www.lakeland.com/europe](http://www.lakeland.com/europe). Tested at saturation unless stated.

Chemical	CAS No.	Brand C	Brand D	ChemMax® 4	Brand E	Brand F
		CE Class	CE Class	CE Class	CE Class	CE Class
Acetone	67-64-1	6	6	6	6	6
Acetonitrile	70-05-8	6	6	6	6	6
Carbon Disulphide	75-15-0	6	Imm	6	6	6
Dichloromethane	75-09-2	Imm	Imm	6	6	6
Diethylamine	209-89-7	6	Imm	6	6	6
Ethyl Acetate	141-78-6	6	6	6	6	6
n-Hexane	110-54-3	6	6	6	6	6
Methanol	67-56-1	6	6	6	6	6
Sodium Hydroxide (30%)	1310-73-2	NA	6	6	6	6
Sulphuric Acid (96%)	7664-93-9	6	6	6	6	6
Tetrahydrofuran	109-99-9	6	6	6	6	6
Toluene	95-47-6	6	6	6	6	6

Chemical-gas						
Ammonia 99%	7664-41-7	6	6	6	6	6
Chlorine 99.5%	7782-50-5	6	6	6	6	6
Hydrogen Chloride (99%)	7647-01-0	6	6	6	6	6

\* NB = normalised breakthrough. This is the time taken for the PERMEATION RATE to reach 1.0µg/minute/cm² in controlled laboratory conditions at 23°C. It is NOT the point at which breakthrough first occurs. For "Safe Use Time" log on to [www.lakeland-permeasure.com](http://www.lakeland-permeasure.com)

Areas shaded green indicate where ChemMax® 4 is either equal to or better than the equivalent brand C, D, E and F products.

**ChemMax® 4 Styles**

**Style code 428**  
Coverall with hood, cuffs, waist & ankles. Double front zip fastening, cushioned kneepads  
Sizes: S - XXXL

**Style code L428**  
Coverall with elasticated hood, cuffs, waist & ankles. Double front zip fastening, cushioned kneepads, thumb loops.  
Sizes: S - XXXL

**Style code 430**  
Coverall "Plus" version with attached feet/boot flap and double cuffs.  
Sizes: S - XXXL

**Style code 430G**  
Coverall with hood and attached feet. Double zip/storm flap, double cuff with attached gloves(1) using Push-Lock®(2) connection system.  
Sizes: S - XXXL  
(1)See page 46 for specification  
(2)See page 32 for detail

**Style code 527**  
Smock / Gown with rear entry / ties and elasticated cuffs  
Sizes: M - XL

**Style code 025**  
Apron with ties  
Sizes: M - XL

**Style code 024**  
Sleeves  
Size: One size

**Style code 023NS**  
Overboots with anti-slip sole  
Sizes: L - XL

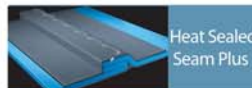
**Style code 021**  
Cape hood with rear inlet pigtail  
Size: One size

Level B Encapsulated Positive Pressure Non-Gas Tight Suits for SCBA (Inside/Outside option) are also available on request.

Available in: Military Green  Yellow

## Interceptor®

Product code INT



### Type 1a gas-tight coverall. Use with internal BA for protection against hazardous gases & vapours

- Multi-layer film technology creates light and flexible high barrier against a wide range of high hazard chemicals. Weight 365gsm.
- Superior design featuring double-taped seams (inside & out).
- Standard or wide-vision visor options; two-layer visor with unique sealing technology for high chemical barrier.
- Double layer chemical glove system.
- European manufactured fabric. Tested against a full range of chemical warfare agents for anti-terror and civil defence operations.
- Very soft and flexible material for enhanced comfort.
- Front and rear entry design options.
- Inner North Silvershield® chemical glove with outer 27mil butyl glove.
- Two rear mounted exhaust valves.
- Attached sock boot with boot overflaps.
- For more information please request the separate Interceptor® brochure.

#### Physical Properties

Property	EN Std	Interceptor®	Brand E	Brand F	Brand G
		CE Class	CE Class	CE Class	CE Class
Abrasion Resistance	EN 530	6	6	6	6
Flex Cracking	ISO 7854	2	1	1	5
Trapezoidal Tear	ISO 9073	6	5	3	3
Tensile Strength	EN 13934	4	4	4	6
Puncture Resistance	EN 863	2	2	2	3
Burst Strength	ISO 2960	4	NA	NA	NA
Seam Strength	ISO 5082	TBA	5	5	6

#### Permeation Test Data \*

Liquid chemicals from EN 6529 Annex A. For a full list of chemicals tested see Permeation Data Tables or Chemical Search at [www.lakeland.com/europe](http://www.lakeland.com/europe). Tested at saturation unless stated.

Chemical	CAS No.	Interceptor®	Brand E	Brand F	Brand G
		CE Class	CE Class	CE Class	CE Class
Acetone	67-64-1	6	6	6	6
Acetonitrile	70-05-8	6	6	6	6
Carbon Disulphide	75-15-0	6	6	6	6
Dichloromethane	75-09-2	6	6	6	6
Diethylamine	209-89-7	6	6	6	6
Ethyl Acetate	141-78-6	6	6	6	6
n-Hexane	110-54-3	6	6	6	6
Methanol	67-56-1	6	6	6	6
Sodium Hydroxide (30%)	1310-73-2	6	6	6	6
Sulphuric Acid (96%)	7664-93-9	6	6	6	6
Tetrahydrofuran	109-99-9	6	6	6	6
Toluene	95-47-6	6	6	6	6

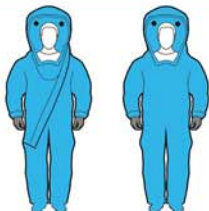
#### Chemical-gas

Ammonia 99%	7664-41-7	6	6	6	6
Chlorine 99.5%	7782-50-5	6	6	6	6
Hydrogen Chloride (99%)	7647-01-0	6	6	6	6

\* NB = normalised breakthrough. This is the time taken for the PERMEATION RATE to reach 1.0µg/minute/cm² in controlled laboratory conditions at 23°C. It is NOT the point at which breakthrough first occurs. For "Safe Use Time" log on to [www.lakeland-permasure.com](http://www.lakeland-permasure.com)

Areas shaded green indicate where Interceptor® is either equal to or better than the equivalent brand E, F and G products.

### Interceptor® Styles



Fully encapsulated suit featuring double layer visor, gas-tight zip and attached boots and gloves:

- Expanded back, attached sock boots with boot flaps
- Seams sealed inside and out
- 122cm gas tight zipper with outer storm flaps
- Neoprene/North Silvershield double layer attached gloves
- 2 exhaust valves
- Inside waist belt
- Storage bag included

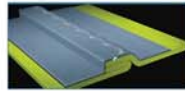
#### Basic Style Options

- INT640 - Front entry / standard width visor
- INT650 - Rear entry / standard width visor
- INT 640W - Front entry / wide vision visor
- INT 650W - Rear entry / wide vision visor

Level B Encapsulated Positive Pressure Non -Gas Tight Suits for SCBA (Inside/Outside option) are also available on request.

Available in: Blue ■ Yellow ■

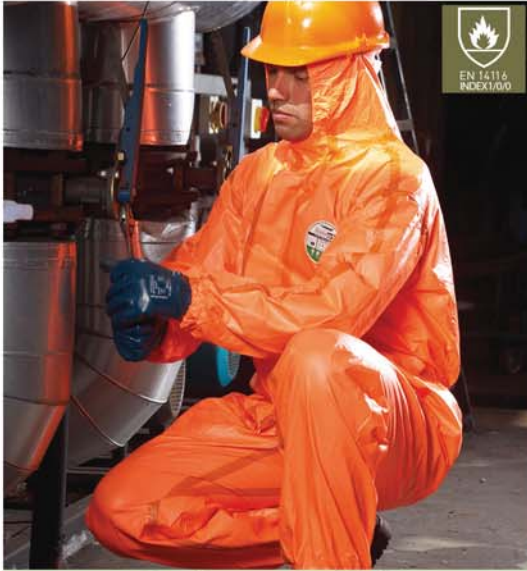
Pyrolon®



Stitched & Taped Seams



Lakeland Pyrolon® Coveralls combine Type 3 & 4 chemical protection with unique FR properties. Pyrolon® fabrics will not ignite and burn so can be safely used where contact with flame may be a hazard. Remember it is the total predicted body burn % result that is crucial to your survival, we publish the facts, it may just save your life by checking this test result with other products on the market.



Product code CRFR

Pyrolon® CRFR (chemical repellent / flame retardant) - 144gsm

- EN 14116 with Type 3 & 4 chemical protection /NFPA 2113 5.1.9.
- Thermal Mannequin Testing shows Total Predicted Body Burn of 24% of 1st degree burn only when worn over TPG.
- Outer FR PVC barrier film laminated to proprietary nonwoven substrate of viscose rayon.
- Fabric will not ignite or burn: chars at temperature lower than its ignition point.
- Exceptionally soft and flexible fabric for superior comfort.
- Can be worn over woven FR garments without compromising flame and heat protection.

Physical Properties					
Flame Retardant EN 14116		Index 1 : Should not be worn next to the skin			
Property	EN Standard	CE Class	Property	EN Standard	CE Class
Abrasion Resistance	EN 530	6	Tensile Strength	EN 13934	3
Flex Cracking	ISO 7854	5	Puncture Resistance	EN 863	2
Trapezoidal Tear	ISO 9073	2	Burst Strength	ISO 2960	2
Seam Strength	ISO 5082	4	Permeation test data on Pyrolon® available separately.		

Pyrolon® Styles



**Style code 428**  
Coverall with hood, cuffs, waist & ankles. Double front zip fastening, cushioned kneepads  
Sizes: S - XXXL



**Style code 527**  
Smock / Gown with rear entry / ties and elasticated cuffs  
Sizes: M - XL



**Style code 025**  
Apron with ties  
Sizes: M - XL



**Style code 023NS**  
Overboots with anti-slip sole  
Sizes: L - XL

Pyrolon® garments are available as standard in the Lakeland Super-B style with three-piece hood, crotch gusset, inset sleeves and double zip/storm flap. (except Pyrolon® TPCR)

Available in: Orange (Pyrolon® CRFR and TPCR)  Grey (Pyrolon® CRFR)



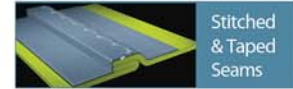
Product code TPCR

Pyrolon® TPCR (thermal / chemical protection) - 330gsm

- Unique combination of thermal protection to standard EN 11612 and chemical protection to Type 3 & 4.
- Can REPLACE woven FR garments in areas where FR protection and chemical protection is required or in very dirty / stressed environments - can reduce wastage of FR coveralls.
- Excellent arc flash protection - tested to 21 cal/cm<sup>2</sup>.
- Tough and durable fabric - may be used multiple times if uncontaminated, clean and undamaged.

Flame and Heat Protection EN 11612		A1 : Class 1 & 2 / A2 : Class 1 & 2 / B1 / C1 / D1 / E1 / F1	
Electric Arc Protection EN 61482-1-2		Class 1 / ASTM F1959M-06A : 21.9 cal/cm <sup>2</sup>	
Physical Properties			
		Pyrolon® TPCR	Brand H
Property	EN Standard	CE Class	CE Class
Abrasion Resistance	EN 530	6	6
Flex Cracking	ISO 7854	5	1
Trapezoidal Tear	ISO 9073	2	5
Tensile Strength	EN 13934	3	5
Puncture Resistance	EN 863	2	2
Seam Strength	ISO 5082	4	5
Permeation and Penetration test data on Pyrolon® available separately.			

Pyrolon® CB-FR



Stitched & Taped Seams



**Maximum Protection!**

- Advanced chemical barrier
- Self extinguishing
- Won't melt or drip
- Meets the NFPA 2113 requirements for section 5.1.9.
- Designed to be worn over primary FR protective clothing, for environments where both chemical exposures and flash fire are a concern

**Specifications:**

**Fabric:** Pyrolon® CB-FR

**Standard:** NFPA 2113, section 5.1.9

**ASTM Burn Data:** 7.65% body burn when worn over Lakeland 6.5 oz. DH FR Coveralls

**Maximum Features!**



Pyrolon® CB-FR Styles



**Style code 52151**

Coverall, respirator-fit hood, storm flap over zipper, elastic face, wrists, attached boots

Sizes: S - 5XL  
Case Pack: 6



**Style code 52132**

Coverall, respirator fit hood, storm flap over zipper, elastic face, wrists and ankles

Sizes: S - 5XL  
Case Pack: 6

Available in: Dark Blue



## Pyrolon® CB-FR

### Pyrolon® CB-FR Physical Properties Physical Properties

Physical Property	Test Method	Units	Test Results
Basis Weight	ASTM D3776	oz/y <sup>2</sup>	7.16 oz/y <sup>2</sup>
Thickness	ASTM D1777	mils	12
Grab Tensile MD	ASTM D5034	lbs.	55.2 lbs.
Grab Tensile XD	ASTM D5034	lbs.	42.88 lbs.
Mullenburst	ASTM D3786	psi	32.5
Trapezoidal Tear MD	ASTM D5587	lbs.	16.28 lbs.
Trapezoidal Tear CD	ASTM D5587	lbs.	24.08 lbs.

### Pyrolon® CB-FR Permeation Testing - ASTM F1001

Chemical	CAS Number	Physical State	Concentration	ASTM F739	EN 369
Acetone	67-64-1	Liquid	99%	>480	>480
Acetonitrile	75-05-8	Liquid	99%	>480	>480
Acrylonitrile	107-13-1	Liquid	99%	>480	>480
Benzene	71-43-2	Liquid	99%	>480	>480
Carbon Disulfide	75-15-0	Liquid	99%	>480	>480
Crude Oil	Various	Liquid	Mixture	58	>480
Dichloromethane	75-09-2	Liquid	99%	>480	>480
Diesel Fuel	Various	Liquid	Mixture	>480	>480
Diethylamine (DEA)	109-89-7	Liquid	99%	130	309
Dimethylformamide (DMF)	68-12-2	Liquid	99%	>480	>480
Ethyl Acetate	141-78-6	Liquid	99%	>480	>480
Gasoline	Various	Liquid	Mixture	138	>480
Hydrofluoric Acid	7664-39-3	Liquid	48%	>480	>480
n-Hexane	110-54-3	Liquid	99%	>480	>480
Methanol	67-56-1	Liquid	99%	25	33
Nitrobenzene	98-95-3	Liquid	99%	>480	>480
Sodium Hydroxide, 50%	1310-73-2	Liquid	50%	>480	>480
Sulfuric Acid 93.1% 66°B	7664-93-9	Liquid	93%	>480	>480
Tetrachloroethylene (perc)	127-18-4	Liquid	99%	>480	>480
Tetrahydrofuran (THF)	109-99-9	Liquid	99%	13	21
Toluene	108-88-3	Liquid	99%	>480	>480
<b>Gases</b>					
Ammonia Anhydrous	7664-41-7	Gas	99%	>480	>480
1, 3-Butadiene inhibited 99%	106-99-0	Gas	99%	>480	>480
Chlorine 99.5%	7782-50-5	Gas	99%	>480	>480
Ethylene Oxide 99.7%	75-21-8	Gas	99%	>480	>480
Hydrogen Chloride 99%	7647-01-0	Gas	99%	182	>480
Methyl Chloride 99.5%	74-87-3	Gas	99%	>480	>480

Note: Chemical Resistance Data is in accordance with ASTM F739 test method. Testing is performed on fabric samples only, not finished garments. Sources for all test data are independent laboratories. All tests were performed under laboratory conditions and not actual use conditions.

### Pyrolon® CB-FR Predicted Body Burn when worn over a Lakeland 6.5 oz. DH FR Coverall

(includes the head)

Burn	2nd Degree	3rd Degree	Average
Garment 1	0%	6.56%	6.56%
Garment 2	0.82%	6.56%	7.38%
Garment 3	2.46%	6.56%	9.02%
<b>Overall Average</b>			<b>7.65%</b>

## Why use Pyrolon® ?



When should Pyrolon® FR chemical suits be used?

Why do standard chemical suits compromise thermal protection?

EN 14116 and Flame and Heat Protection

Many applications require both thermal protection and chemical protection. How do you provide both?

Currently users often wear a Thermal Protective Garment (TPG) for flame protection and wear a standard chemical suit OVER it for chemical protection.

Why?

**This creates a HAZARD!**



### EN Standard - EN 14116

Protection against Heat and Flame Limited Flame Spread

This standard measures the tendency of a fabric to ignite and propagate a flame, using the vertical flame test method EN 15025 which applies a flame to the centre or bottom edge of a fabric sample. Index 1 requires that any flame should not propagate

to the top or sides of the fabric, that there should be no flaming debris or drips and that there should be no spreading afterglow once burning has ceased. It does however allow the flame contact to form a hole in the fabric.

Thus certification to EN 14116 Index 1 indicates a fabric that will not ignite in contact with a flame.

However it provides NO protection against flame and should not be worn next to the skin.

Standard chemical suit fabrics are based on polypropylene/polyethylene and in contact with flames will ignite and burn

Being thermoplastic they will melt and drip, adhering to the TPG fabric below, transferring heat energy to the skin beneath and to other surfaces, thus potentially spreading the fire.

In a flash fire situation this will dramatically increase the heat energy contacting the skin and thus the incidence of body burn.

Even in the case of contact with a small flame, a standard chemical suit fabric may ignite and cause burns.

Wearing a standard chemical suit over a TPG can dramatically compromise thermal protection.



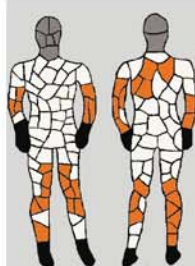
Lakeland Pyrolon® garments use a unique, viscose-based fabric which will not ignite. **(certified to EN 14116 Index 1)** However, Pyrolon® TPCR offers full thermal protection to EN 11612 and can REPLACE a standard thermal protective garment.

### Thermal Mannequin Testing: Predicted Body Burn

Thermal Mannequin Testing is optional in EN 11612 for thermal protective garments and provides a method of predicting percentage body burn in a flash fire situation and therefore the effectiveness of the protection provides.

The body maps below show the predicted body burn in three tests.

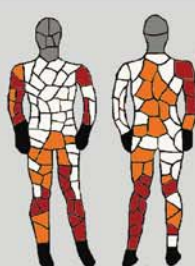
1. A TPG only (Nomex® IIIA).
2. A TPG with a standard disposable chemical suit worn over it.
3. A TPG with Pyrolon® CRFR worn over it.



1 A TPG only (Nomex® IIIA)

Predicted body burn = 37%

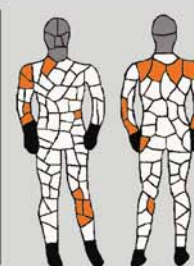
1<sup>st</sup> degree burns only



2 A TPG with a standard disposable chemical suit worn over it

Predicted body burn = 53%

1<sup>st</sup> and 2<sup>nd</sup> degree burns (red = 2<sup>nd</sup> degree burns)



3 A TPG with Pyrolon® CRFR worn over it

Predicted body burn = 24%

1<sup>st</sup> degree burns only

The testing shows that wearing a standard chemical suit OVER a TPG will REDUCE thermal protection, whilst wearing a Pyrolon® chemical suit over a TPG will INCREASE thermal protection.

## CHEMICAL PROTECTIVE CLOTHING PERMEATING DATA

Chemical	CAS Number	Phase	Conc	ChemMAX 1	ChemMAX 2	ChemMAX 3	ChemMAX 4	Interceptor
				EN369	EN369	EN369	EN369	EN369
Acetic Acid	64-19-7	Liquid	99%	200	>480	>480	470	470
Acetic Anhydride	108-24-7	Liquid	99%	-	>480	>480	-	-
Acetone	67-64-1	Liquid	95%	Imm	>480	>480	>480	>480
Acetonitrile	75-05-8	Liquid	99%	>480	>480	>480	>480	>480
Acetyl Chloride	75-36-5	Liquid	98%	-	-	-	210	210
Acrolein	107-02-8	Liquid	90%	-	11	>480	>480	>480
Acrylic Acid	79-10-7	Liquid	99%	120	>480	>480	430	430
Acrylonitrile	107-13-1	Liquid	99%	-	>480	>480	>480	>480
Allyl Chloride	107-05-1	Liquid	98%	-	-	-	>480	>480
Ammonia	7664-41-7	Liquid	99%	-	-	-	>480	>480
Ammonia Gas	7664-41-7	Gas	100%	Imm	15	>480	>480	>480
Ammonium Fluoride	12125-01-8	Liquid	40%	-	-	-	>480	>480
Amyl Acetate	628-63-7	Liquid	99%	-	-	>480	-	-
Aniline	62-53-3	Liquid	95%	-	>480	>480	-	-
Benzene	71-43-2	Liquid	100%	-	Imm	>480	-	-
Benzonitrile	100-47-0	Liquid	99%	-	-	-	>480	>480
Benzyl Alcohol	100-51-6	Liquid	>95%	-	>480	-	-	-
Benzoyl Chloride	98-88-4	Liquid	98%	-	-	-	-	>480
Bromine	7726-95-6	Liquid	98%	-	Imm	Imm	45	120
Bromochloromethane	74-97-5	Liquid	98%	-	-	-	-	>480
4-Bromofluorobenzene	460-00-4	Liquid	99%	-	-	-	-	>480
Butyl Acrylate	141-32-2	Liquid	99%	-	-	-	-	>480
1,2 Butylene Oxide	106-88-7	Liquid	99%	-	-	-	-	>480
1,3-Butadiene	106-99-0	Gas	99%	Imm	>480	>480	>480	>480
n-Butyl Acetate	123-86-4	Liquid	99%	-	-	-	>480	>480
N-Butanol	71-36-3	Liquid	99%	-	>480	-	-	-
Butyraldehyde	123-72-8	Liquid	99%	-	>480	-	-	-
Carbon Disulfide	75-15-0	Liquid	95%	>480	>480	>480	>480	>480
Carbon Monoxide	630-08-0	Gas	100%	-	>480	320	-	>480
Carbon Tetrachloride	56-23-5	Liquid	99.9%	-	-	-	-	>480
Chlorine Gas	7782-50-5	Gas	99%	Imm	>480	>480	>480	>480
Chloroacetone	78-95-5	Liquid	>95%	-	>480	-	-	-
Chloroacetic Acid (saturated solution)	79-11-8	Liquid	saturated solution	-	-	-	-	>480
Chloroacetyl Chloride	79-04-9	Liquid	98%	-	-	-	-	>480
Chlorobenzene	108-90-7	Liquid	>95%	-	-	9	>480	>480
Chlorosulfuric Acid	7790-94-5	Liquid	99%	-	>480	-	>480	>480
Crotonaldehyde	123-73-9	Liquid	99%	-	>480	-	-	-
Cyclohexane	110-82-7	Liquid	99%	-	>480	>480	-	-
Cyclohexanone	108-94-1	Liquid	99%	-	48	-	-	>480
Cyclohexyl Isocyanate	3173-53-3	Liquid	99%	-	5	-	-	>480
Dichloroacetyl Chloride	79-36-7	Liquid	98%	-	-	-	-	400
1,2-Dichloroethane	107-06-2	Liquid	100%	-	>480	>480	-	-
Dichloromethane	75-09-2	Liquid	99.9%	Imm	Imm	>480	>480	>480
1,2-Dichloropropane	78-87-5	Liquid	99%	-	>480	-	-	-
Diesel Fuel	68334-30-5	Liquid	100%	-	-	>480	-	-
Diethylamine	109-89-7	Liquid	99.5%	Imm	15	Imm	>480	>480
N, N-Dimethylaniline	121-69-7	Liquid	99%	-	-	-	>480	>480
Diethylene Glycol (Dimethyl Ether)	111-96-6	Liquid	99%	-	-	-	>480	>480
Diethylenetriamine	111-40-0	Liquid	98%	-	-	-	>480	>480
2,3-Dichloro-1-Propene	78-88-6	Liquid	98%	-	-	-	-	>480
Dimethylamine	124-40-3	Liquid	99%	-	210	-	-	-
Dimethyl Sulfate	77-78-1	Liquid	99%	-	-	-	-	>480
Dimethyl Disulfide	624-92-0	Liquid	99%	-	-	-	-	>480
Dimethyl Ether (gas)	115-10-6	Gas	99%	-	-	-	-	>480
Dimethyl Sulfoxide	67-68-5	Liquid	99.9%	-	-	>480	>480	>480
Dimethylacetamide	127-19-5	Liquid	>95%	-	45	-	-	-
Dimethyl Formamide	68-12-2	Liquid	99%	>480	>480	>480	>480	>480
DI-N-Butyl ether	142-96-1	Liquid	99%	-	-	>480	>480	>480
Dinoseb	88-85-7	Liquid	1000ppm	-	-	>480	-	-
Epichlorohydrin	106-89-8	Liquid	99.9%	-	260	>480	-	-
Ethanol Amine	141-43-5	Liquid	99%	-	-	>480	-	-
Ethyl Acetate	141-78-6	Liquid	99.5%	Imm	>480	>480	>480	>480
Ethyl Acrylate	140-88-5	Liquid	99%	-	-	-	>480	>480
Ethyl Methacrylate	97-63-2	Liquid	99%	-	-	-	>480	>480
Ethyl Parathion	56-38-2	Liquid	100 µg/mil ethanol	-	-	-	-	>480
Ethyl Vinyl Ether	109-92-2	Liquid	99%	-	-	-	-	>480
Ethylamine (gas)	75-04-7	Gas	97%	-	-	-	-	>480
Ethyl Acrylate	140-88-5	Liquid	99%	-	-	-	-	>480
Ethyle Ether	60-29-7	Liquid	98%	-	-	-	>480	>480
Ethylene Oxide	75-21-8	Liquid	99.7%	>480	>480	>480	>480	>480
Ferric Chloride	7705-08-0	Liquid	saturated solution	-	-	-	-	>480
Fluorine (Sodium Fluoride)	7681-49-4	Liquid	99%	>480	-	-	>480	>480
Fluorobenzene	462-06-6	Liquid	99%	-	-	>480	>480	>480
Fluorosilic Acid (25 wt% aqueous sol.)	16961-83-4	Liquid	25%	-	-	-	>480	>480
Ethylene Glycol	107-21-1	Liquid	99%	>480	>480	>480	-	-
Ethyl Benzene	100-41-4	Liquid	98%	-	-	>480	-	-
Ethylene Oxide Gas	75-21-8	Gas	99.7%	>480	>480	>480	>480	>480
Formaldehyde	50-00-0	Liquid	37%	-	>480	>480	-	-

- This is a general guide to selecting garments only, and should not be used as the definitive or only tool in garment selection.
- It is the responsibility of the user to select garments or products which are appropriate for each intended use and which meet all specified government and industry standards.
- The test data is supplied by third-party test institution according to EN369/EN6529 namely the time it takes chemical permeation rate to achieve 0.1ug/cm<sup>2</sup> /min at constant 23°C.
- To calculate "Safe Use Time", taking into account the crucial factor of temperature, log on to [www.lakeland-permasure.com](http://www.lakeland-permasure.com)

# CHEMICAL PROTECTIVE CLOTHING PERMEATING DATA

Chemical	CAS Number	Phase	Conc	ChemMAX 1	ChemMAX 2	ChemMAX 3	ChemMAX 4	Interceptor
				EN369	EN369	EN369	EN369	EN369
Formic Acid	64-18-6	Liquid	>95%	>480	>480	>480	>480	>480
Gasoline	86290-81-5	Liquid	100%	-	>480	>480	-	-
Hexachloro-1,3 butadiene	87-68-3	Liquid	99%	-	-	>480	>480	>480
Hexamethyldisilazane	999-97-3	Liquid	>95%	-	>480	-	-	-
N-Hexane	110-54-3	Liquid	99.9%	-	>480	>480	>480	>480
Hexamethylene Diisocyanate	822-06-0	Liquid	99%	>480	>480	>480	-	-
Hydrazine Hydrate (64% hydrazine)	10217-52-4	Liquid	100%	-	-	-	-	>480
Hydrochloric Acid	7647-01-0	Liquid	37%	420	>480	>480	>480	>480
Hydrofluoric Acid	7664-39-3	Liquid	48-50%	-	>480	>480	220	>480
Hydrogen Fluoride	7664-39-3	Liquid	100%	-	>480	>480	-	>480
Hydrogen Fluoride Gas	7664-39-3	Gas	99%	-	>480	>480	>480	>480
Hydrogen Chloride Gas	7647-01-0	Gas	99%	Imm	410	>480	>480	>480
Hydrogen Cyanide	74-90-8	Gas	95%	>480	-	-	-	-
Hydrogen Cyanide	74-90-8	Liquid	95%	-	-	>480	-	-
Hydroiodic Acid	10034-85-2	Liquid	56.5%	-	-	-	>480	>480
Hydrogen Peroxide	7722-84-1	Liquid	30%	>480	>480	>480	>480	>480
Hydrogen Peroxide	7722-84-1	Liquid	50%	>480	>480	>480	>480	>480
Isopropanol	67-63-0	Liquid	99%	>480	-	-	-	-
Isobutane	75-28-5	Gas	99%	-	-	-	-	>480
Isobutylbenzene	538-93-2	Liquid	99.5%	-	-	-	-	>480
Isoprene	78-79-5	Liquid	98%	-	-	-	-	>480
Maleic Acid	110-16-7	Liquid	saturated solution	-	-	-	-	>480
Maleic Anhydride (solution)	108-31-6	Liquid	65%	-	-	-	-	>480
Jet Fuel A		Liquid	100%	Imm	283	>480	-	-
Jet Fuel JP-8		Liquid	100%	Imm	>480	>480	-	-
Lithium Chloride	7447-34-8	Liquid	20%	>480	-	-	-	-
Mecury II Nitriate(1000 ppm solution)	7483-34-8	Liquid	100%	-	-	>480	-	-
Metacrylic Acid	79-41-4	Liquid	99%	-	-	-	>480	>480
Methanol	67-56-1	Liquid	99.9%	210	>480	>480	>480	>480
Methyl Chloride	74-87-3	Gas	99.5	>480	>480	>480	>480	>480
Methyl Iodide	74-88-4	Liquid	99.9%	-	-	-	>480	>480
Methyl Mercaptan	74-93-1	Liquid	99%	-	-	>480	>480	>480
Methylamine	74-89-5	Liquid	40%	-	>480	>480	>480	>480
Methylamine	74-89-5	Liquid	99%	-	-	-	>480	>480
Methylene Dianiline	101-77-9	Liquid	99%	Imm	Imm	>480	-	>480
Methylene Diphenyl Diisocyanate	101-68-8	Liquid	99%	>480	>480	>480	-	-
Methyl Ethyl Ketone	78-93-3	Liquid	99.5%	-	>480	>480	-	-
Methylthiopropionaldehyde	3268-49-3	Liquid	>97%	-	-	>480	-	-
Methyl Isocyanate	624-83-9	Liquid	100%	-	>480	-	-	-
Nitric Acid	7697-37-2	Liquid	70%	>480	>480	>480	>480	>480
n-Butyl Acetate	123-86-4	Liquid	99.9%	-	-	-	-	>480
n-butylamine	109-73-9	Liquid	99%	-	-	-	-	>480
Nitrobenzene	98-95-3	Liquid	99.9%	50	150	170	>480	>480
Nitric Oxide	10102-43-9	Gas	99%	-	-	-	-	>480
Nitrochloro Benzene (ethanol solution)	201-854-9	Liquid	saturated solution	-	-	-	-	>480
Nitrogen Tetroxide (<10°C)	10102-44-0	Gas/Liquid	99%	-	-	-	>480	>480
Nitrogen Dioxide	10102-44-0	Gas	100%	-	>480	>480	>480	>480
Oleum	8014-95-7	Liquid	40%	30	>480	>480	>480	>480
Oleum	8014-95-7	Liquid	100%	-	>480	>480	>480	>480
Oxalic Acid (solution)	144-62-7	Liquid	75%	-	-	-	-	>480
Phenol	108-95-2	Liquid	99%	>480	>480	>480	>480	>480
Phosphoric Acid	7664-38-2	Liquid	85%	>480	>480	>480	>480	>480
Potassium Hydroxide	1310-58-3	Liquid	50%	>480	>480	>480	>480	>480
Propionaldehyde	123-38-6	Liquid	99%	-	-	-	-	>480
Propionic Acid	79-09-4	Liquid	99.5%	-	-	-	-	>480
Pyridine	110-86-1	Liquid	99%	-	-	-	>480	>480
Phosphorous Trichloride	7719-12-2	Liquid	>95%	-	Imm	20	-	-
Propionitrile	107-12-0	Liquid	99%	>480	-	-	-	-
Sodium Hydroxide	1310-73-2	Liquid	50%	>480	>480	>480	>480	>480
Styrene	100-42-5	Liquid	98%	-	12	>480	-	-
Sulfuric Acid	7664-93-9	Liquid	30%	>480	>480	>480	>480	>480
Sulfuric Acid	7664-93-9	Liquid	98%	>480	>480	>480	>480	>480
Sulfur hexafluoride	2551-62-4	Gas	99%	-	-	-	>480	-
Sulfur Trioxide	7446-119	Liquid	99%	-	120	80	-	>480
Tetrachloroethylene	127-18-4	Liquid	99%	-	>480	>480	>480	>480
1,1,2,2-Tetrabromoethane	97-27-6	Liquid	98%	-	-	-	-	>480
Thionyl Chloride	7719-09-7	Liquid	99%	-	-	Imm	30	30
Tetrahydrofuran	109-99-9	Liquid	99.9%	Imm	81	>480	>480	>480
Tiethoxysilane	998-30-1	Liquid	95%	-	-	-	-	>480
Titanium Tetrachloride	7550-45-0	Liquid	99%	-	>480	>480	-	-
Toluene	108-88-3	Liquid	99.8%	Imm	Imm	>480	>480	>480
Toluene-2,4-Diisocyanate	584-84-9	Liquid	98%	-	-	-	>480	>480
2,2,2-Trichloroethanol	115-20-8	Liquid	99%	-	-	-	-	>480
Trichloroethylene	79-01-6	Liquid	100%	-	Imm	>480	>480	>480
Trichlorovinylsilane	75-94-5	Liquid	99%	-	70	-	-	-
Trifluoroacetic Acid	76-05-1	Liquid	99%	-	>480	>480	-	-
Vinyl Acetate	108-05-4	Liquid	99%	-	29	>480	>480	>480
Vinyl Bromide	593-60-2	Gas	99%	-	-	-	-	>480
Vinyl Chloride	75-01-4	Liquid	99%	-	>480	>480	-	>480
Xylene	1330-20-7	Liquid	99%	-	-	>480	-	-



# Guide to Garment Selection

## PermaSURE® : Real Safe-Use Times for ChemMax® 3, 4 and Interceptor®

A test breakthrough of >480m does NOT mean you are safe for 480 minutes or that no chemical has broken through the fabric in that time.

### What is PermaSURE®?

EN6529 Permeation test breakthrough data is NOT when the chemical first breaks through the fabric and provides NO information on how long you are safe.

### So how do you know how long you are safe?

To find a safe-use time, users need to calculate a volume permeated using permeation rate, exposed area and exposure time:-

$$\text{Permeation Rate} \times \text{Area Exposed} \times \text{Time Exposed} = \text{Volume Permeated}$$

This can then be compared with published toxicity limits for chemicals:

Volume Permeated < Toxicity Limit  
= SAFE

Volume Permeated > Toxicity Limit  
= NOT SAFE

PermaSURE® is an on-line app that calculates permeation rates and volume permeated and provides safe-use times by comparison with chemical toxicity limits as described above.

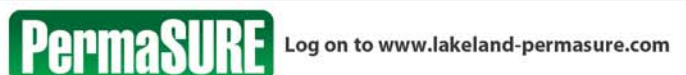
The screenshot shows the PermaSURE web application interface. Callouts point to various features:

- Specify suit type:** Points to the 'Suit Type' dropdown menu.
- Specify temperature:** Points to the 'Suit Temp (°C)' input field.
- Specify exposure time:** Points to the 'Exposure Time (mins)' input field.
- Search database of over 4000 chemicals:** Points to the search bar and dropdown menu.
- Data on toxicity, state and hazard types:** Points to the 'Toxicity Risk Assessment' section showing hazard icons and text.
- Links to CDC emergency response and data sheets:** Points to the 'Chemical Properties' link.
- Click on Calculate:** Points to the 'Calculate' button.
- PermaSURE® indicates if toxicity is reached in more or less than the exposure time:** Points to the 'Time to Tox. Limit' and 'Timer' sections.

**PermaSURE® allows users to calculate safe-use times for ChemMax® garments based on real world data including temperature and exposed area.**

**PermaSURE®: easy-to-access safe-use times for ChemMax® 3 & 4 and Interceptor®**

- Works on any browser-enabled device with an internet connection.
- Simple to use. Easy-to-access interface with data input and output fields.
- User inputs suit type, exposure time, temperature and chemical. PermaSURE® provides key hazard data and in seconds an assessment of whether the user is safe in the input exposure time.
- Over 4000 chemicals in the database.
- PermaSURE® calculates safe-use times taking into account temperature and the toxicity thresholds of specific chemicals.
- PermaSURE® provides instant basic chemical hazard data and single-click links to detailed online safety data sheets



# Push-Lock® Glove Connection System

Product code CX-JFR2-05



Tested to Type 3 with ChemMax® 1, 2 and 3 suits



The Lakeland Push-Lock® Glove Connection System provides a secure alternative to using the traditional method of adhesive tape to seal the glove to the garment sleeve.

There are several advantages:

Adhesive Tape	Push-Lock® Glove Connection
Haphazard - no control or knowledge as to whether the tape actually creates a seal.	Tested to the Type 3 Jet test with ChemMax® 1,2 and 3
Two operatives needed - the tape must be applied by another operative after the suit is donned.	The user attaches the gloves before donning the suit.
Cost - correct chemical tape for gloves sealing is expensive.	The Push-Lock® glove connection system can be used repeatedly - the more uses the more cost effective it becomes.
Cost control - very difficult to control how much tape is used.	Cost is known precisely and gets less with re-use.
Uncomfortable - tape MUST be applied tightly to the wrist if it is effective.	The Push-Lock® system sits loosely and comfortably on the wrist.
Must be removed by another operative and damages the suit sleeve, making it unusable in the process.	Suit is removed by the user with the gloves attached. Suit can be re-used if undamaged and uncontaminated.

## Unique system to connect chemical gloves to ChemMax® coveralls sleeves.

- Two concentric plastic rings clip together with glove and sleeve between.
- Provides liquid-tight seal tested and approved to Type 3 Jet Spray with ChemMax® 1, 2 and 3 garments.
- Multi-use so more cost effective.
- Simpler and quicker to use and fit compared to traditional taping of sleeve and glove.
- Available in cartons of 20 rings (to equip 5 garments)

### How does it work?



## Additional Information

### Selection, Use, Storage, Shelf-Life and Disposal

This guide provides advice on the selection of an appropriate chemical suit, suggesting some of the factors that may influence the selection decision. However, selection is often complex involving multiple and sometimes conflicting factors and may involve factors that Lakeland cannot predict. The final decision on selection of a garment for a specific application is therefore always the users' responsibility.



#### Storage

Lakeland chemical suits are manufactured from polymers which are inert materials and are unaffected by normal temperatures and conditions.

Garments are supplied individually packed (except Intercepto®). They can be stored in normal storage facilities. Keep dry and avoid direct sunlight and temperatures below -15°C.



#### Shelf-Life

Lakeland chemical suits are generally constructed from inert polymers that are unaffected by normal storage conditions. In unopened bags and in such conditions (-10°C to 50°C, dry and away from direct light) the expected shelf life should be 10 years or more. Some

discoloration of fabrics may occur over time, but this merely relates to seepage of dyes and does not affect fabric performance.

However some specific properties of fabrics MAY alter over time. In particular anti-static properties result from a topical treatment which will degrade over time.

We recommend that for any gas-tight garment, a pressure test is carried out after 7 years and should the garment fail the test it should be used for training purposes only thereafter.

It is vital that all garments, regardless of age, but especially after a longer shelf life, are thoroughly checked for damage or wear immediately before use. Do not use any garment that appears worn or damaged. It is always the end user's responsibility to ensure any garment is fit for purpose.

#### Use



Regardless of age, or whether before first use or re-use, all suits should undergo a thorough visual inspection to ensure there are no tears, wear or other damage evident and that zips and elastic are intact and function correctly. **Do not use any garment with apparent damage or wear.**

Donning and doffing (especially the latter during which suits may be contaminated) is a critical part of the application; correct donning is vital in ensuring correct protection is provided. Lakeland recommends a written donning and doffing procedure is established. Detailed advice on donning and doffing is available from Lakeland separately.

During use where possible monitor suits for damage, wear or contamination. Damaged or heavily contaminated suits should be removed, disposed of and replaced as soon as possible.

#### Re-Use



Lakeland garments are designed as single use and should be disposed of after one use. However, if a garment is undamaged and uncontaminated by any chemical, it may be re-used if appropriate.

Note however that any fabric (regardless of whether it is classed as disposable or re-usable) that has been contaminated by a chemical will have a lower breakthrough time than when new. Contaminating chemicals may permeate into the fabric and cannot be removed by a decontamination shower or other cleaning method. It is the entirely the user's responsibility to determine if re-use of a garment is safe.

#### Disposal



Uncontaminated garments can be disposed of as standard waste according to local regulations. However, contaminated garments may require decontamination before disposal and must be disposed according to regulations relating to the chemical concerned.

### Permeation & Chemical Toxicity - Further Information

Chemical safety data sheets are available from various sources:

- **European Chemicals Agency (ECHA)** ([www.echa.europa.eu](http://www.echa.europa.eu)) – provides useful information cards on chemicals.
- **UK Government Compendium of Chemical Hazards** ([www.gov.uk/government/collections/chemical-hazards-compendium](http://www.gov.uk/government/collections/chemical-hazards-compendium)) - Access to information sheets with useful general information on chemical hazards.
- **The Centre for Disease Control and Prevention (CDC)** ([www.cdc.gov/niosh/ipcs/](http://www.cdc.gov/niosh/ipcs/)). Access to International Chemical Safety Cards (ICSC). Detailed information cards for a comprehensive range of chemicals.
- **Regulation (Ec) No 1272/2008 Of The European Parliament and of the Council** Classification, labelling and packaging of substances and mixtures. Useful information on hazard classification of chemicals.

Many of the data sheets available will indicate exposure limits in the form of:

- OEL's (Occupational Exposure Limit)
- TLV's (Threshold Limit Value),
- TWA's (Time Weighted Average Exposure Limit)
- STEL's (Short term Exposure Limit).

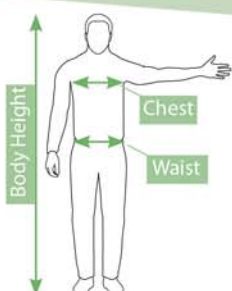
These can provide useful pointers to the exposure limits on specific chemicals for a risk assessment. However, these limits should not be taken as sharp dividing lines between "harm" and "no harm" for a variety of reasons - not least simply that information may not be available.

So it is important to build in wide safety margins in any risk assessment.

**Lakeland provides no guarantees on the accuracy of safety information on any of the sites listed.**

\* Competitor brand results are from competitors' own websites and were correct at the time of publication. Users are recommended to check up to date information with competitors before making any assessment based on specific chemicals. Other chemical test results may be available from competitors.

### Garment Sizing



Lakeland garments are cut and sized generously and according to the Super-B style for maximum freedom.

Size	Body Height (cm)	Chest (cm)	Waist (cm)
S	164-170	84-92	82-88
M	170-176	92-100	88-94
L	176-182	100-108	94-100
XL	182-188	108-116	100-106
XXL	189-194	116-124	106-112
XXXL	194-200	124-132	112-114

Selection of the appropriate sized garment is important in maximising comfort, protection and durability.

## HEAT RESISTANT CLOTHING

### Caution! Do Not Confuse Ambient, Conductive and Radiant Heat!

The following definitions are given as reference in selecting the proper clothing for heat protection.

**Ambient Heat** is surrounding atmospheric temperature in a given situation. Examples are: 65°F-70°F (18°C-21°C) in an office; 1600°C in a fire walk.

**Conductive Heat** is generated by direct contact with a hot surface. Examples are: picking up a burning block at 600°F (315°C); leaning against a furnace wall at 1000°F (537°C).

**Radiant Heat** is generated by the sun or source of fire, such as a fireplace or furnace, and is absorbed by masses of material struck by the heat's rays. This is why it is cooler in the shade on a sunny, hot day.

### EN11611:2007 Requirements



Program	Test Method	Standard Requirements	
		1 class	2class
Flame resistance performance	ISO 15025-A ISO 15025-B	The mean value of after flame time and afterglow time is less 2 seconds. No melt or molten debris, no holes and no flame to the top or the edge.	
Resistance to molten metal splash	ISO 9150	≥15drops	≥25drops
Radiation heat	ISO 6942 (20kW/m <sup>2</sup> )	RHTI 24 ≥ 7s	RHTI 24 ≥ 16s

### EN11612:2008



Program	Test Method	300 suits	500 suits	700 Suits
Limited flame spread	ISO 15025-A	A1	A1	A1
	ISO 15025-B	A2	A2	A2
Convective heat(B)	ISO 9151	B1	B1	B3
Radiation heat(C)	ISO 6942(20kW/m <sup>2</sup> )	C3	C2	C4
Molten aluminum splash(D)	ISO 9185	D1	D3	NA
Molten iron splash(E)	ISO 9185	E1	E3	NA
Contact heat(F)	ISO 12127	F1	F1	F3

### Fabric Structure

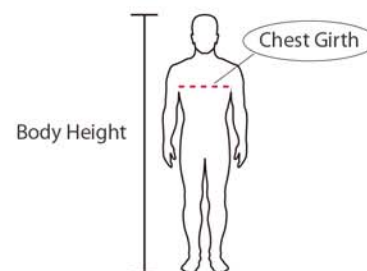
Series	Layer	Material	Series	Layer	Material
300 Series	Outer Shell	100% Aluminized Glass	900 Series	Liner	100% Aluminized Glass
	Liner	None			1. Fiberglass Insulation
400 Series	Outer Shell	Kevlar Aluminized			2. AL Foil
	Liner	None			3. AL Foil
500 Series	Outer Shell	100% Aluminized Glass			4. Fiberglass Insulation
	Liner	Neoprene Coated Nylon		5. White Fiberglass	
700 Series	Liner	Outer Shell		100% Aluminized Glass	
		1. AL Foil			
		2. Fiberglass Insulation			
		3. Neoprene Coated Nylon			

### Sizes

Please select the appropriate size for your chest, girth, and height. Selection of the correct sizes aids comfort and durability of the garment.

Sizes: (300, 400, 500, 700 Series)	
Garment Sizes	Chest Girth (cm)
XS	165-169
S	170-174
M	175-179
L	180-184
XL	185-189
XXL	190-200

Sizes: (900 Series)		
Model Numbers	Body Height (cm)	Body Weight(kg)
900/SS	165-175	63-75
900/R	176-185	76-95



The 900 suit is tailored to be worn with a self-contained breathing apparatus (SCBA) for protection in hostile atmospheres.



## 300/305 SERIES APPROACH



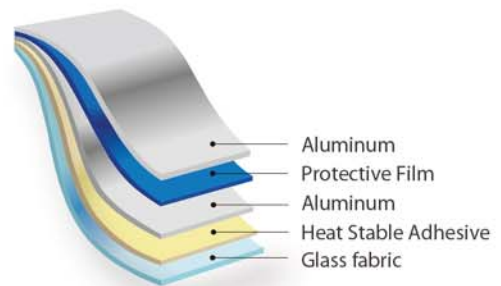
At Left, the 300 Series Approach Suit, featuring a coat and pants. Right, the 305 Series Approach Coverall.

### FEATURES

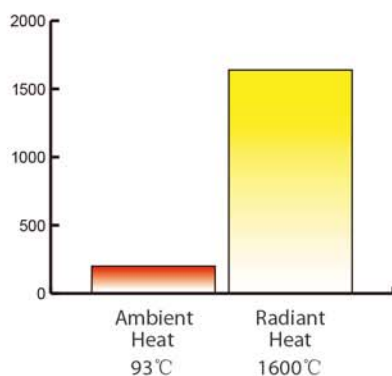
- 300/305 series suits are made of 16oz/sq.yd aluminized glass fabric which reflects 95% of radiation heat with superior durability.
- 300 /305 series suits meet the requirements of EN11611:2008 and EN11612:2007.
- 300 /305 series suits come complete with a hood with gold reflective face shield, gloves and boots.
- 300 /305 series are available in coverall or coats and pant styles, with or without SCBA accommodation.

### KEY APPLICATIONS

- Metal smelting industry
- Glass, cement and Ceramic industry
- Petrochemical industry



### HEAT TOLERANCES



The graphs above are provided for relative comparison of radiant and ambient heat performance of Lakeland's Industrial Heat Protective Clothing. The temperatures indicated are extrapolated from laboratory tests and ARE NOT intended to indicate suitability for use at these temperatures. Individual physiology, work conditions, and the work being performed are too variable to make recommendations for use based only on temperature and exposure time.

The 300 Series Approach Suit are not to be used for fire entry.

### MODEL NUMBERS

300 BA	Approach Suit complete, SCBA accommodation.	with SCBA	1 Suit/ Case
300	Approach Suit complete.		1 Suit/ Case
305 BA	Approach Coverall complete, SCBA accommodation.	with SCBA	1 Suit/ Case
305	Approach Coverall complete.		1 Suit/ Case

### SUIT COMPONENTS

310	Approach Hood	
322 BA	Approach Coverall	with SCBA
322	Approach Coverall	
320-32 BA	Approach Coat	with SCBA
320-32	Approach Coat	
330	Approach Pants	
355	Approach Boots	
344-02A	Gauntlet Glove	

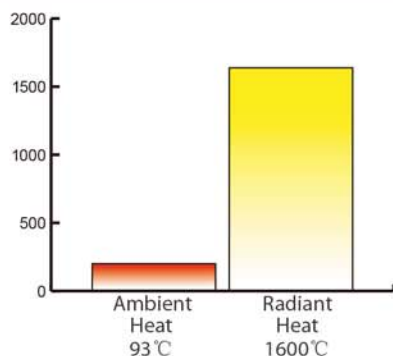
## 400/405 SERIES APPROACH



At left, the 400 Series Approach Suit, featuring a coat and pant. Right, the 405 Series Approach Coverall.

The 400/405 Series Approach Suits are not to be used for fire entry. The 400/405 Series Approach Suits are designed for personal engaged in maintenance, repair and operational tasks in areas where exposure to high radiation heat with low ambient, or molten metal splash risks.

### HEAT TOLERANCES



The graphs above are provided for relative comparison of radiant and ambient heat performance of Lakeland's Industrial Heat Protective Clothing. The temperatures indicated are extrapolated from laboratory tests and ARE NOT intended to indicate suitability for use at these temperatures. Individual physiology, work conditions, and the work being performed are too variable to make recommendations for use based only on temperature and exposure time.

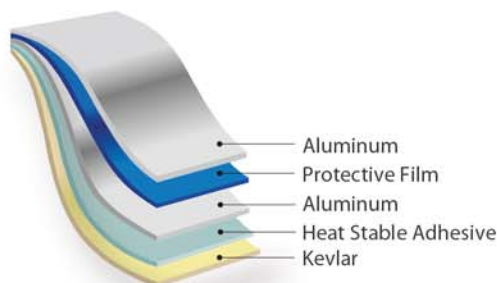
The 400 Series Approach Suit are not to be used for fire entry.

### FEATURES

- 400/405 series suits are made of 19oz/sq.yd aluminized Kevlar fabric which reflects 95% of radiation heat with superior durability, and high performance against molten metal splash.
- 400 /405 series suits come complete with a hood with gold reflective face shield, gloves and boots.
- 400 /405 series are available in coverall or coats and pant styles, with or without SCBA accommodation.

### KEY APPLICATIONS

- Firefighting rescue
- Metal smelting industry
- Glass, cement and ceramic industry
- Petrochemical industry



### MODEL NUMBERS

400BA	Approach Suit complete, SCBA accommodation.	with SCBA	1 Suit/ Case
400	Approach Suit complete.		1 Suit/ Case
405BA	Approach Coverall complete, SCBA accommodation.	with SCBA	1 Suit/ Case
405	Approach Coverall complete.		1 Suit/ Case

### FABRIC PERFORMANCE TEST

Weight	645g/m <sup>2</sup>	
Thickness	1.14mm	
Tensile strength	MD	1779N
	CD	667N
Tear strength	MD	CNM
	CD	200N
Flame resistance	After flame time	2S
	Char length	1.3cm
EEN531	A,B2,C4,D2,E3	



## 500/505 SERIES APPROACH

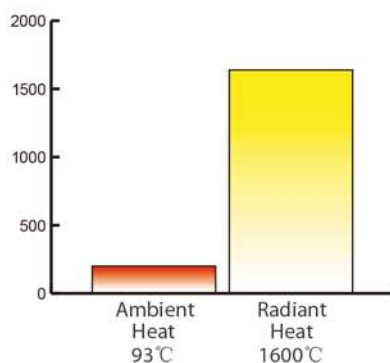


At left, the 500 Series Approach Suit, featuring a coat and pant. Right, the 505 Series Approach Coverall.

The 500 and 505 Series Approach Suits are designed for personnel engaged in maintenance, repair and operational tasks in areas of low ambient, high radiant heat.

These superior protective approach suits have two layers, outer shell is aluminized glass fabric, and inner layer is nylon coating neoprene fabric for moisture/steam barrier. Therefore, 500 approach suits can be used in area where exposure to hot liquids, steam, or hot vapor.

### HEAT TOLERANCES



The graphs above are provided for relative comparison of radiant and ambient heat performance of Lakeland's Industrial Heat Protective Clothing. The temperatures indicated are extrapolated from laboratory tests and ARE NOT intended to indicate suitability for use at these temperatures. Individual physiology, work conditions, and the work being performed are too variable to make recommendations for use based only on temperature and exposure time.

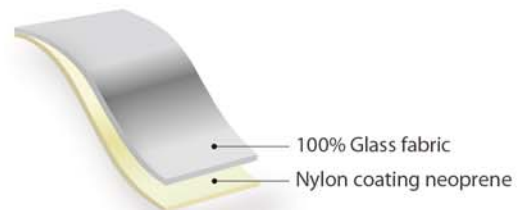
The 500/505 Series Approach Suits are not to be used for fire entry.

### FEATURES

- 500 /505 series suits meet the requirements of EN11611:2008 and EN11612:2007.
- 500/505 series suits come complete with a hood with gold reflective face shield, gloves and boots.
- 500/505 series are available in coverall or coats and pant styles, with or without SCBA accommodation.

### KEY APPLICATIONS

500 and 505 Series Approach Suits are used by power plants, cement manufacturers, foundries, ceramic, glass and plastic manufacturers, chemical processing. Suits protect employees exposed to extreme radiant heat for relatively prolonged period of time.



MODEL NUMBERS			
500BA	Approach Suit complete, SCBA accommodation.	with SCBA	1 Suit/ Case
500	Approach Suit complete.		1 Suit/ Case
505BA	Approach Coverall complete, SCBA accommodation.	with SCBA	1 Suit/ Case
505	Approach Coverall complete.		1 Suit/ Case

SUIT COMPONENTS		
510	Approach Hood	
522BA	Approach Coverall	with SCBA
522	Approach Coverall	
520-32BA	Approach Coat	with SCBA
520-32	Approach Coat	
530	Approach Pants	
555	Approach Boots	
344-02A	Gauntlet Glove	



## 700/705 SERIES PROXIMITY SUITS



Left, the 700 Series Proximity Suit, featuring a coat and pants. Right the 705 Series Proximity Coverall.

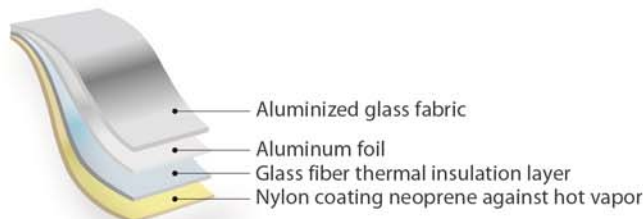
### FEATURES

Fyrepel's 700 and 705 Series Proximity Suits are designed for performance of maintenance and repairs in high heat areas. Workers wearing these proximity garments are insulated from harm by Fyrepel's unique, proven multi layer construction, with the outer layer composed of high temperature Aluminized Glass. An additional moisture/steam barrier lining provides protection in areas where exposure to hot liquids, or hot vapor is a possibility. Redesigned for better fit, the 700 and 705 Series Suits are available in coverall or coat and pant styles.

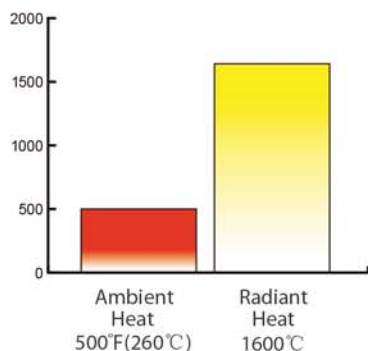
The coverall or the coat and pant styles are available with an SCBA accommodation, if required. The 700 Series Suit comes complete with a hood, gold reflective faceshield, coat, pants, mitts and boots. The 705 Series Coverall comes complete with a hood with gold reflective faceshield, coverall, boots and mitts. Both series are offered in sizes Small, Medium, Large and Extra Large. Individual replacement components are available. Handy duffel/storage bags are also available.

### KEY APPLICATIONS

700 and 705 Series Proximity Suits are used by industries which bake on finishes, such as auto, office furniture, and appliance manufacturers. The Proximity Suits may also be used in oven and conveyor repair.



### HEAT TOLERANCES



The graphs above are provided for relative comparison of radiant and ambient heat performance of Lakeland's Industrial Heat Protective Clothing. The temperatures indicated are extrapolated from laboratory tests and ARE NOT intended to indicate suitability for use at these temperatures. Individual physiology, work conditions, and the work being performed are too variable to make recommendations for use based only on temperature and exposure time.

The 700/705 Series Proximity Suits are not to be used for fire entry.

### MODEL NUMBERS

700BA	Proximity Suit complete, SCBA accommodation.	with SCBA	1 Suit/ Case
700	Proximity Suit complete.		1 Suit/ Case
705BA	Proximity Coverall complete, SCBA accommodation.	with SCBA	1 Suit/ Case
705	Proximity Coverall complete.		1 Suit/ Case

### SUIT COMPONENTS

710	Proximity Hood	
722BA	Proximity Coverall	with SCBA
722	Proximity Coverall	
720BA	Proximity Coat	with SCBA
720	Proximity Coat	
730	Proximity Pants	
755	Proximity Boots	
744-02N	Proximity Mitts	



## 900 SERIES KILN ENTRY SUIT



### FEATURES

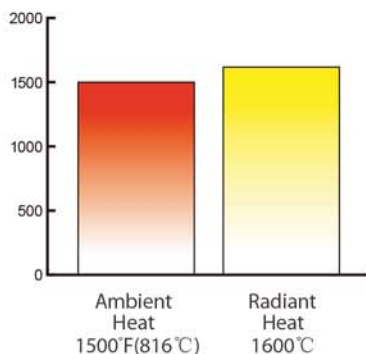
This Kiln Entry suit is for workers who must function in kiln or other extreme heat situations that do not involve total flame, but require high quality heat protection. Fyrepel's unparalleled insulation capabilities make these 900 Series Suits the top choice for tough jobs, such as furnace repairs at high ambient temperatures in the steel, glass and ceramic industries, or where high pressure steam is a threat in petrochemical and chemical plants.

Fyrepel 900 Series Kiln Entry Suits put multiple layers of glass and an extra layer of aluminized glass between you and dangerous heat or non-ferrous splash. These suits are tailored to be worn with a self-contained breathing apparatus (SCBA) for protection in hostile atmospheres. Faceshield protection is provided by a multi-layered system of tempered glass and reflective gold on a heat resistant base. The hoods have excellent lateral and vertical visibility.

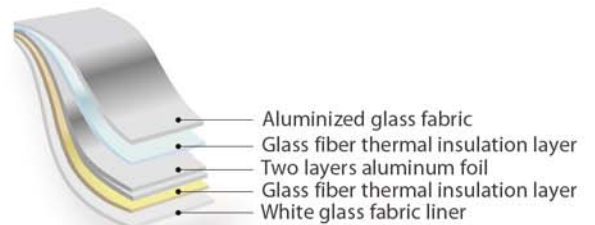
The 900 Series Kiln Entry Suit comes complete with a hood, coat, pants, mitts and boots. The 900 Series Kiln Entry Suit is available in two sizes; the 900/R fits heights from 5'10" up to 6'1", with weights ranging from 170 lbs. up to 210 lbs. The 900/SS fits heights from 5'5" up to 5'9", with weights ranging from 140 lbs. to 165 lbs. Individual replacement components are available. Note: For safety precautions, two personnel should be suited to aid one another and work in relays.

The 900 Series is tailored to be worn with a self-contained breathing apparatus (SCBA).

### HEAT TOLERANCES



The graphs above are provided for relative comparison of radiant and ambient heat performance of Lakeland's Industrial Heat Protective Clothing. The temperatures indicated are extrapolated from laboratory tests and ARE NOT intended to indicate suitability for use at these temperatures. Individual physiology, work conditions, and the work being performed are too variable to make recommendations for use based only on temperature and exposure time.











MODEL NUMBERS		
900R	Kiln Entry Suit, complete, SCBA accommodations.	1 Suit/ Case
900SS	Kiln Entry Suit, Complete SCBA accommodations.	1 Suit/ Case

SUIT COMPONENTS	
910	Kiln Entry Hood
920R	Kiln Entry Coat
930R	Kiln Entry Pants
920SS	Kiln Entry Coat
930SS	Kiln Entry Pants
955	Kiln Entry Boots
940	Kiln Entry Gauntlet

The 900 Series Kiln Entry Suit is not to be used for fire entry.

ACCESSORIES

	
<p><b>323-42AG Approach Apron</b>      <b>325-48AG Approach Apron</b></p>	<p><b>310 Approach Hood</b></p>
<p>These versatile approach aprons offer superior protection against radiant heat. Non-insulated aprons are available in surgeon styles and in various lengths. The non-insulated styles are offered in aluminized glass.</p>	<p>Perfect as replacement items for our 500 and 300 series suits or coveralls, these hoods are designed for maintenance, repair and operational tasks in areas of low ambient, high radiant heat. Winglocks on faceshield make for quick and easy replacement.</p>
	
<p><b>320-50 AG Approach Coat</b>      <b>320-32 AG/BA Approach Coat with optional SCBA accommodation</b></p>	<p><b>330AG Approach Pants</b>      <b>522AG Approach Coveralls</b></p>
<ul style="list-style-type: none"> <li>• Non-insulated approach coats are offered in both the 300 and 500 Series styles. The 500 series has the added benefit of a moisture/steam barrier lining. These coats are ideal as replacements for lost or worn suits, or as the primary protector in situations where only a coat is required. Both the 300 and 500 series are available in aluminized glass or aluminized Nomex .</li> <li>• Replacements coats for 300 and 500 Series suits are offered in 32" (76 cm) lengths. Additional coats are available in 36", 40", 46" and 50" (81 cm, 102 cm, 127 cm) lengths. Coats are offered in sizes Small, Medium, Large, and Extra Large. Also available with SCBA accommodation.</li> </ul>	<p>Fyrepel non-insulated approach pants and overalls are available in either the 500 or 300 series. The 500 series added moisture/steam barrier provides protection from environments where exposure to hot liquids, steam or hot vapor is a possibility. The pants are offered in either a big or waist style, and are a compliment to the approach coats. The approach coveralls are offered with the option of SCBA accommodations. Both the 300 and 500 series are available in aluminized glass or aluminized Nomex materials. Pants are offered in sizes Small, Medium, Large, and Extra Large.</p>
	
<p><b>336-18AG Aluminized Sleeves</b></p>	<p><b>355AG / 555AG Aluminized Approach boots</b></p>
<p>Indispensable where workers may make accidental contact with hot metal, glass, or high heat surfaces. Sleeves are offered in non-insulated approach styles, in 12", 18" and 24" (30 cm, 46 cm, 61 cm) lengths.</p>	<p>The 300 series approach boots are noninsulated and are useful for maintenance and operational tasks in areas of low ambient, high radiant heat. The 355AG boots offer a texturized anti-skid neoprene sole with a substrate of high temperature glass.</p>
	
<p><b>Chap 332</b>      <b>Spat 334</b></p>	<p><b>344-02A 300 Series Approach Mitt</b>      <b>740 700 Series Proximity Mitt</b></p>

# ARC TECH Rainwear

## Superior Performance and Protection

**Advanced protection for the Electrical, Petrochemical and Chemical, Off-Shore, Rail, Airline, Marine, Construction, Multi-Utility Network Operators, Emergency Service and Response, National Security, Fuel Handling and Distribution markets.**

### Advanced Fabric Technology:

- Waterproof.
- Windproof.
- Increased Breathability keeping regulated body temperature.
- Superior Puncture, Tear and Abrasion Resistance.
- Stain Resistant against Fuel, Oil, Diesel, Grease and many other petroleum based by-products.
- Fabric properties dramatically reduce Mold and Mildew odour build up.
- Superior Flexibility providing unique softness and lightweight comfort.
- Reinforced welded/sealed seams providing maximum strength.
- Reinforced garment stress points featuring unique DRP design.

### Certification:

AS/NZS 4602.1.2011 - Class D Day or Night Use

AS/NZS 1906.4.2010 - Reflectivity of Materials

ASTM F1891 - Standard Specification for Arc and Flame Resistant Rainwear.

ENA NENS 09 - Meets the latest recommended ASTM F1891 certification on Rainwear garments.

ASTM F 2733 - Standard Specification for Flame Resistant Rainwear for Protection Against Flame hazards.

ASTM F903 - Standard Test Method for Resistance of Materials Used in Protective Clothing to Penetration by Liquids.

NFPA 70E - Standard for Electrical Safety in the Workplace.

### Available in 2 fabric choices

Fabric Specification:	AJPU/ABPU	AJPVC/ABPVC
Arc Rating ATPV Cal/cm <sup>2</sup>	16.3	8.3
Ebtas Cal/cm <sup>2</sup>	21.9	43
Heat Attenuation Factor %	84	82
MVTR g/m <sup>2</sup> /24Hr	305	471
Total % Body Burn	12.3% /3 <sup>rd</sup> Degree 6.55%	13.66% /3 <sup>rd</sup> Degree 6.28

*Leg Zippers  
Make for Easy  
Donning and  
Doffing Over  
Work Boots!*



### Jacket Styles

### Bib Trousler Styles



Style code AJPU10LY  
Style code AJPVC10LY  
Zipper, attached hood,  
elastic wrist.

Sizes: S - 5XL



Style code AJPU10HO  
Zipper, attached hood,  
elastic wrist.

Sizes: S - 5XL



Style code ABPU10LYZ  
Style code ABPVC10LY  
Bib Pants.



Style code ABPU10HOZ  
Bib Pants.

Available in: Yellow ■ Orange ■ \* AJPU Style only

## Style AJPU10LY Jacket and ABPU10LY Bib Pants Features



Jacket and Pant garment seams are stitched and HF sealed to prevent liquid penetration



3" internal anti-wicking dam on bottom of jacket and pants to prevent internal moisture migration



Reinforced lanyard opening



Over-size jacket hood with adjustable draw string fits comfortably over a hard hat



Ventilated jacket back



Hook and loop adjustable jacket and pant cuffs for optimal fit and comfort



Jacket collar with self stowing hood storage



Zipper front closure with hook and loop storm flap prevents liquids from sneaking in



Two oversize 9" x 9.5" lower jacket front pockets with hook and loop closure and pull tabs, plus hand warmer openings.



Non-metallic quick release bib pant strap clips



Innovative DRP™ Diamond Reinforced Patch to prevent crotch "blow out"



One reinforced oversize 9" x 9.5" pant pocket with hook and loop closure and pull tabs



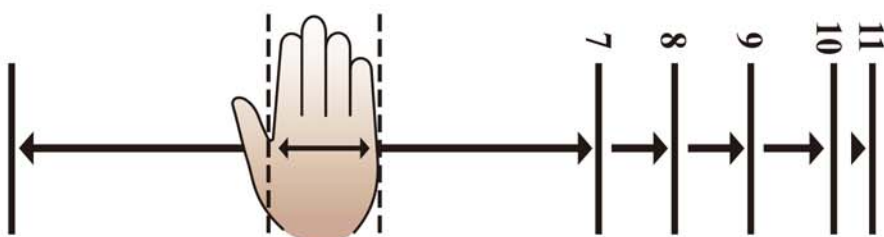
Zipper Style feature for ABPU Fabric



Velcro Fastening for ABPVC Fabric



## HAND PROTECTION





Lakeland gloves are available in a range of sizes 7-11 according to EN420.



Glove Size	Hand Circumference/length
7	178/171mm
8	203/182mm
9	229/192mm
10	254/204mm
11	279/215mm

## STANDARDS OF PROTECTIVE GLOVES

### Lakeland Protective Gloves meet the requirement of EN standards.

EN420 General Requirement for Protective Gloves		Please refer to the instruction for use					
EN388: 2003 Protective Gloves against Mechanical Risks		Performance Level	1	2	3	4	5
		A Abrasion Cycles	100	500	2000	8000	-
		B Cutting Index	1.2	2.5	5.0	10.0	20.0
		C Tear Force (N)	10	25	50	75	-
		D Puncture Force (N)	20	60	100	150	-

A new version of the glove standard EN388: Protection against mechanical risks has been published, superseding EN388:2003. This only affects new product certification and will not apply retrospectively. Gloves may continue to be sold under both versions of the standard until 2023, when, under the new PPE Regulation, their certification will need to be renewed and that will have to be to the latest version of the standard.

EN374-2&3: 2003 Gloves Giving Protection from Chemicals and Micro-Organisms	 Micro-organism Resistant	The 'Micro-organism' pictogram is to be used when the glove conforms to at least a performance level 2 for the Penetration test.	Performance level	Acceptable quality level unit
			1	<4.0
			2	<1.5
			3	<0.65
	 Chemical Resistant XYZ	The 'Chemical resistant' glove pictogram must be accompanied by a 3-digit code. This code refers to the code letters of 3 chemicals (from a list of 12 standard defined chemicals), for which a breakthrough time of at least 30 minutes has been obtained.	Protection Index	Measured breakthrough time
			0	<10
			1	>10
			2	>30
			3	>60
		A. Methanol	4	>120
		B. Acetone	5	>240
		C. Acetonitrile	6	>480
		D. Dichloromethane		
		E. Carbone disulphide		
		F. Toluene		
		G. Diethylamine		
		H. Tetrahydrofuran		
		I. Ethyl acetate		
		J. n-Heptane		
		K. Sodium hydroxide 40%		
		L. Sulphuric acid 96%		

EN407 Gloves Giving Protection from Thermal Hazards	 Heat and Flame Resistant	Performance Level	1	2	3	4	
		A. Resistance to flammability	After Flame Time (s)	<20	<10	<3	<2
			After Glow Time (s)	No requirement	<120	<25	<5
		B. Contact heat resistance(s)	100°C	250°C	350°C	500°C	
			>15	>15	>15	>15	
		C. Convective heat resistance(s)	>4	>7	>10	>18	
		D. Radiant heat resistance(s)	>7	>20	>50	>95	
E. Resistance to small splashes of molten metal(s)	>10	>15	>25	>35			
F. Resistance to large splashes of molten metal(g)	30	60	120	200			

## NITRILE Nitrosol™



Raised Lozenge Grain



Flocklined

### FEATURES

- Outstanding Chemical Resistance: Provides protection both physical and chemical when exposed to solvents... petroleum, aromatic, caustics and fatty acids in food service applications.
- Outstanding Physical Properties: Excellent snag, puncture, abrasion and cut resistance. Case hardened to increase wear and chemical resistance.
- Raised Lozenge Grain: Easier and safe handling of wet objects. Lozenge Grain for superior wet grip.
- Widest Selection of Styles: Choose from unlined or flocklined in various mil thicknesses and various lengths.

### KEY APPLICATIONS

- Paint spraying operation.
- Degreasing.
- Electronics.
- Photo finishing.
- Petrochemicals.
- Refining.
- Handling solvents, alcohols, acids and caustics.

Product Code	Description	Length	Sizes	Case Pack
EN15	15 Mil, Unlined, Raised Lozenge Grain	13"(33cm)	8-11	144 pairs/carton
EN15F	15 Mil, Flocklined, Raised Lozenge Grain	13"(33cm)	8-11	144 pairs/carton
EN19F	19 Mil, Flocklined, Raised Lozenge Grain	13"(33cm)	8-11	144 pairs/carton
EN22L	22 Mil, Unlined, Raised Lozenge Grain	17.7"(45cm)	8-10	36 pairs/carton

## NATURAL RUBBER Natrasol™



Raised Zig Zag Grain



Flocklined

### FEATURES

- Outstanding Chemical Resistance: Provides protection against caustics, detergents, acids, alcohols and many ketones.
- Physical Properties: Case hardened for greater abrasion and chemical resistance than other ordinary natural rubber gloves.
- Creature Comforts:
  - Contoured palm and ergonomically designed curved fingers for a soft comfortable fit.
  - Soft flock lining which absorbs perspiration and feels comfortable while exposed to solvents.
  - Raised Zig Zag Grain for improved wet grip.

### KEY APPLICATIONS

- Electronics and Semi-conductor Industry.
- Food Processing.
- Tank Cleaning.
- Handling acids, ketones, alkalis, caustics, epoxies.
- Printing industry.

Product Code	Description	Length	Sizes	Case Pack
ER18F	18mil, Flocklined, Raised Zig Zag Grain	13"(33cm)	8-11	144 pairs/carton

NEOLASOL™ NEOPRENE NATURAL RUBBER

Neolasol™



Raised Zig Zag Grain



Flocklined

FEATURES

- **Unique Process:**  
Our 2 dip process allows for a blend of neoprene and natural rubber over natural rubber, increasing the level of protection in a broad range of chemicals.
- **Versatility:**  
Provides a level of versatile chemical resistance compared to conventional single dipped gloves.
- **Longer Length:**  
13" length is longer than most other gloves for added protection.
- **Economical:**  
An economical option- cost savings idea over other types of chemical resistant gloves.
- **Creature Comforts:**  
Contoured palm and ergonomically designfingers for a soft, comfortable fit.
- **Flock Lined:**  
Soft flock lining absorbs perspiration and feels comfortable while exposed to solvents.
- **Get a Grip:**  
Raised diamond pattern provides a better grip while handling wet or dry areas.

KEY APPLICATIONS

- Pesticide manufacturing.
- Janitorial.
- Chemical processing.
- Light assembly.
- Food service.

Product Code	Description	Length	Sizes	Case Pack
ECR27F	27 Mil Flocklined, Raised Zig Zag Grain	13"(33cm)	8-10	108 pairs/carton

NEOSOL™ NEOPRENE

Neosol™



Pebble finish on the palm and back of hand



Flocklined

FEATURES

- **Wide Spectrum Chemical Protection:**  
Resists a broad range of chemicals. Acid, caustic, oil and solvent resistant.
- **Improved Physical Properties:**  
Gloves are case hardened increasing wear, abrasion resistance and chemical resistance over other ordinary neoprene gloves.
- **Creature Comfort:**  
Contoured palm and ergonomically designed curved fingers make for a soft, comfortable fit.

KEY APPLICATIONS

- **Printing:** clean up, graphics arts.
- **Electronics:** handling of printed circuit boards, semiconductor.
- **General manufacturing:** fabrication, cutting oils, caustics, dip tanks.
- **Aerospace:** cleaning solvents, engine fan blades, metal fabrication.
- **Auto industry.**
- **Chemical processing Industry.**
- **Glass manufacturing.**
- **Janitorial.**

Product Code	Description	Length	Sizes	Case Pack
EC30F	30 Mil, Flocklined, Pebble finish on the palm and back of hand	13"(33cm)	8-11	72 pairs/carton



## DISPOSABLE GLOVES



Product code 8304PF



### Disposable Nitrile Gloves

#### 8304PF Disposable Nitrile Gloves (Powder Free, Palm-Textured)

The glove that contains no latex is very comfortable and dexterity. It is much thicker and more durable than common disposable nitrile gloves. The grip performance is better because of textured surface.

#### FEATURES

- Contains no latex and prevents hypersensitiveness;
- 0.10mm thickness, 24cm length, comfortable and good dexterity;
- Good chemical and oil resistance;
- Textured surface for good grip;
- Meets CE certification;
- The materials comply with FDA regulations for food contact.

#### KEY APPLICATIONS

- Chemical industry;
- Automobile manufacture;
- Small Parts handling;
- Laboratory;
- Light duty maintenance and cleanup;
- Pharmaceutical processing and manufacture.



Description	Sizes	Case Pack
Disposable nitrile gloves, Powder free	S-XL	100pcs/box 10boxes/carton



Product code 8204PF



### Disposable Latex Gloves

#### 8204PF Disposable Latex Gloves (Powder Free, Palm-textured)

Comfortable, dexterity, Textured surface for good grip and good elasticity for all kinds of demands.

#### FEATURES

- Latex material, better elasticity and biodegradable;
- 0.10mm thickness, 240mm length, powder free, comfortable and dexterity;
- Textured surface for good grip;
- Removable packing, useable with either hand.

#### KEY APPLICATIONS

- Food handling;
- Small Parts handling;
- Laboratory;
- Light duty maintenance and cleanup.



Description	Sizes	Case Pack
Disposable latex gloves, Powder free	S-XL	100pcs/box 10boxes/carton

Product code 8308PF



### Disposable Nitrile Gloves

#### 8308PF Disposable Nitrile Gloves

The gloves are Comfortable, dexterity, and chemical resistance; Much thicker and more durable than common disposable nitrile gloves; Reusable.

#### FEATURES

- Thin nitrile material, better elasticity and dexterity;
- 0.20mm thickness, 305mm length, powder free;
- Textured surface for good grip;
- Removable packing, useable with either hand;
- Good chemical, solvent and low concentration of acid and alkaline resistance.

#### KEY APPLICATIONS

- Chemical industry;
- Automobile manufacture;
- Small Parts handling.



Description	Sizes	Case Pack
Disposable nitrile gloves, Powder free	S-XL	50pcs/box 10boxes/carton

# CleanMax® Cleanroom Apparel



**STERILE R** Irradiation Sterilization

Available in Clean Manufactured or Clean Sterile configurations

## Lakeland CleanMax™ Cleanroom Apparel

- Lakeland CleanMax™ garments provide the comfort, quality and protection you expect, all backed by our 30+ years as a manufacturer of disposable protective apparel.

### All Lakeland CleanMax™ Apparel is:

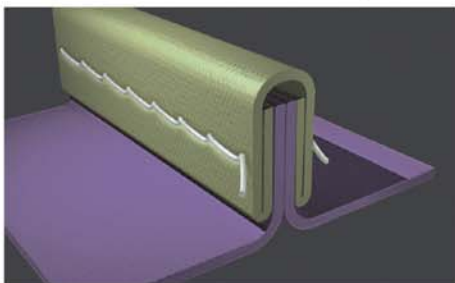
- Chemical Penetration Resistance to oils, bleach and 50% Sodium Hydroxide
- Resistant to blood and body fluid penetration
- Resistant to viral penetration
- Resistant to Blood Borne Pathogens

### CleanMax™ Physical Properties

Physical Property	Test Method	Units	Test Results
Basis Weight	ASTM D3776	oz/y2	1.55 oz/y2
Grab Tensile MD	ASTM D5034	lbs.	22.0 lbs.
Grab Tensile XD	ASTM D5034	lbs.	14.0 lbs.
Trapezoidal Tear MD	ASTM D1117	lbs.	9.0 lbs.
Trapezoidal Tear CD	ASTM D1117	lbs.	5.8 lbs.
Ball Burst	ASTM D3787	lbs.	19.0 lbs.
Air Permeability	ASTM D737	cfm	<0.562 cfm/ft2
Water Vapor Transmission	ASTM 96-80	g/m <sup>2</sup> -24hrs	663.38
Bacterial Filtration Efficiency	ASTM F2101	%	99.99%
Particle Filtration Efficiency	ASTM F2299	%	99.99%

### Bound Seams

CleanMax™ garments feature bound seams, which are precisely sewn with an additional outer binding. This increases seam strength and provides a better barrier from particulates.



Available in: White

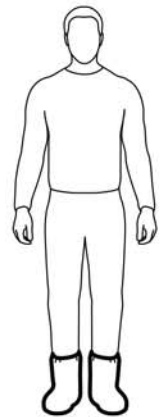
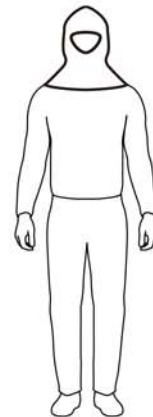
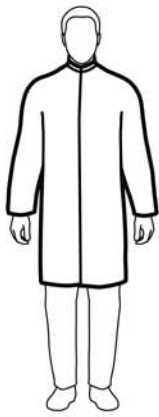
### Tunneled Elastic

Garment elastic is completely covered by the garment material so the elastic is not exposed to the work environment.



# CleanMax® Cleanroom Apparel

CleanMax® Style



## Clean Manufactured Garments

### Frock – CTL191CM

Clean Manufactured in Silicone Free Environment

- Mandarin collar
- Zipper closure
- No pockets
- Elastic wrists
- For critical environments
- Individually bagged

Sizes: S – 5X  
Case Pack: 25

### Coverall – CTL417CM

Clean Manufactured in Silicone Free Environment

- Zipper closure
- Elastic wrists
- Elastic ankles
- For critical environments
- Individually bagged

Sizes: S – 5X  
Case Pack: 25

### Coverall – CTL428CM

Clean Manufactured in Silicone Free Environment

- Zipper closure
- Attached hood
- Elastic wrists
- Elastic ankles
- For critical environments
- Individually bagged

Sizes: S – 5X  
Case Pack: 25

### Hood – CTL713CM

Clean Manufactured in Silicone Free Environment

- Elastic face
- Covers shoulders
- One size
- For critical environments
- Individually bagged

Case Pack: 250

### Boot Cover – CTL903CM

Clean Manufactured in Silicone Free Environment

- Elastic top
- 17" high
- For critical environments
- Individually bagged

Sizes: S/M, L/XL, 2X  
Case Pack: 200 pair

## Clean Sterile Garments

### Coverall – CTL417CS

Clean Sterile in Silicone Free Environment

- Zipper closure
- Elastic wrists
- Elastic ankles
- For critical environments
- Individually bagged

Sizes: S – 5X  
Case Pack: 25

### Coverall – CTL428CS

Clean Sterile in Silicone Free Environment

- Zipper closure
- Attached hood
- Elastic wrists
- Elastic ankles
- For critical environments
- Individually bagged

Sizes: S – 5X  
Case Pack: 25

### Hood – CTL713CS

Clean Sterile in Silicone Free Environment

- Elastic face
- Covers shoulders
- One size
- For critical environments
- Individually bagged

Case Pack: 250

### Boot Cover – CTL903CS

Clean Sterile in Silicone Free Environment

- Elastic top
- 17" high
- For critical environments
- Individually bagged

Sizes: S/M, L/XL, 2X  
Case Pack: 200 pair

STERILE Irradiation Sterilization

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## Clean Sterile Garments and Packaging

CleanMax™ Clean Sterile garments are sterile to a sterility assurance level of 10<sup>-6</sup> SAL, and are compatible with ISO Class 5-8 Cleanrooms and all Controlled Environments"

**Nick Stevenson**

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Protect Your People™

