Lakeland®

Disposable and Chemical Protective Clothing

NEW

MicroMax® VP

Bloodborne Pathogen and Chemical Protection all in one garment!
Page 4

CleanMax®

Cleanroom Apparel - available in Clean Manufactured or Clean Sterile versions
Page 6

MicroMax® NS Vend Packs!

Ideally packaged for vending, retail, response kits and single use applications
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PermaSure®

Mobile-friendly online tool that models permeation rates and safe-use times for over 4,000 chemicals
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CONTENT

Disposable Clothing

Chemical Clothing

FR Disposable Clothing

Resources

NEW

34 PERMASURE®

PROTECTING WORKING PROFESSIONALS SINCE 1982

Lakeland® Industries is a global manufacturer of personal protective equipment, specializing in Disposable and Chemical Protective Apparel, FR/AR Clothing and Protective Gear for First Responders.

For over 35 years Lakeland® has provided products to the working professionals in Electric and Gas Utilities, the Oil and Gas Industry, General Manufacturing, Public Safety and the Petrochemical sectors, keeping workers both safe and comfortable on the job.

World-Class Sales and Support – all around the globe

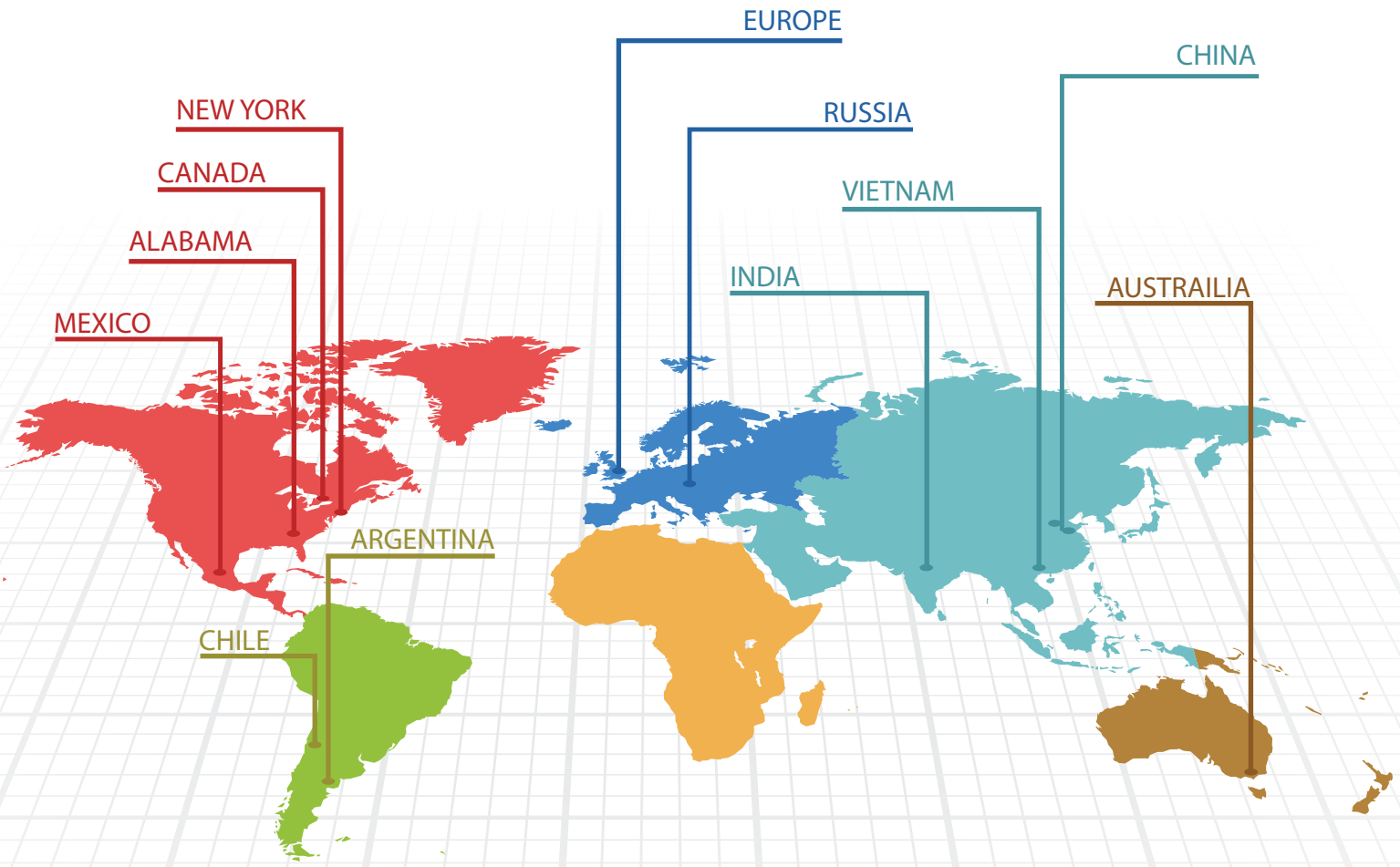
At Lakeland® Industries, our number one priority is creating protective garments that protect your people from hazardous particulates, liquids and chemicals, blood, diseases, and even fire and arc flash. Throughout the world, Lakeland® products Protect Your People®.

It's what we do.

Headquartered in Ronkonkoma, New York, since 1982, and supported by a global team in over 18 countries around the world, you can trust our experience, our expertise, and most importantly, our proven track record of developing and delivering superior garments that provide the protection and performance you require on the job, every day.

Lakeland's customers worldwide have access to nearly 4 decades of our expertise developing and supplying products to the Oil and Gas, Petrochemical, Utility, Wind Energy, Healthcare, Cleanroom and hundreds of other Industries around the globe.

Lakeland's Team of Global Experts are ready to assist. Any application. Anywhere.



Global Manufacturing and Design - supporting a worldwide customer network

Lakeland® Industries' products have established and maintained a global reputation for overall quality and are recognized as the industry's gold standard. We design and manufacture a wide variety of technologically advanced protective clothing in our factories around the world.

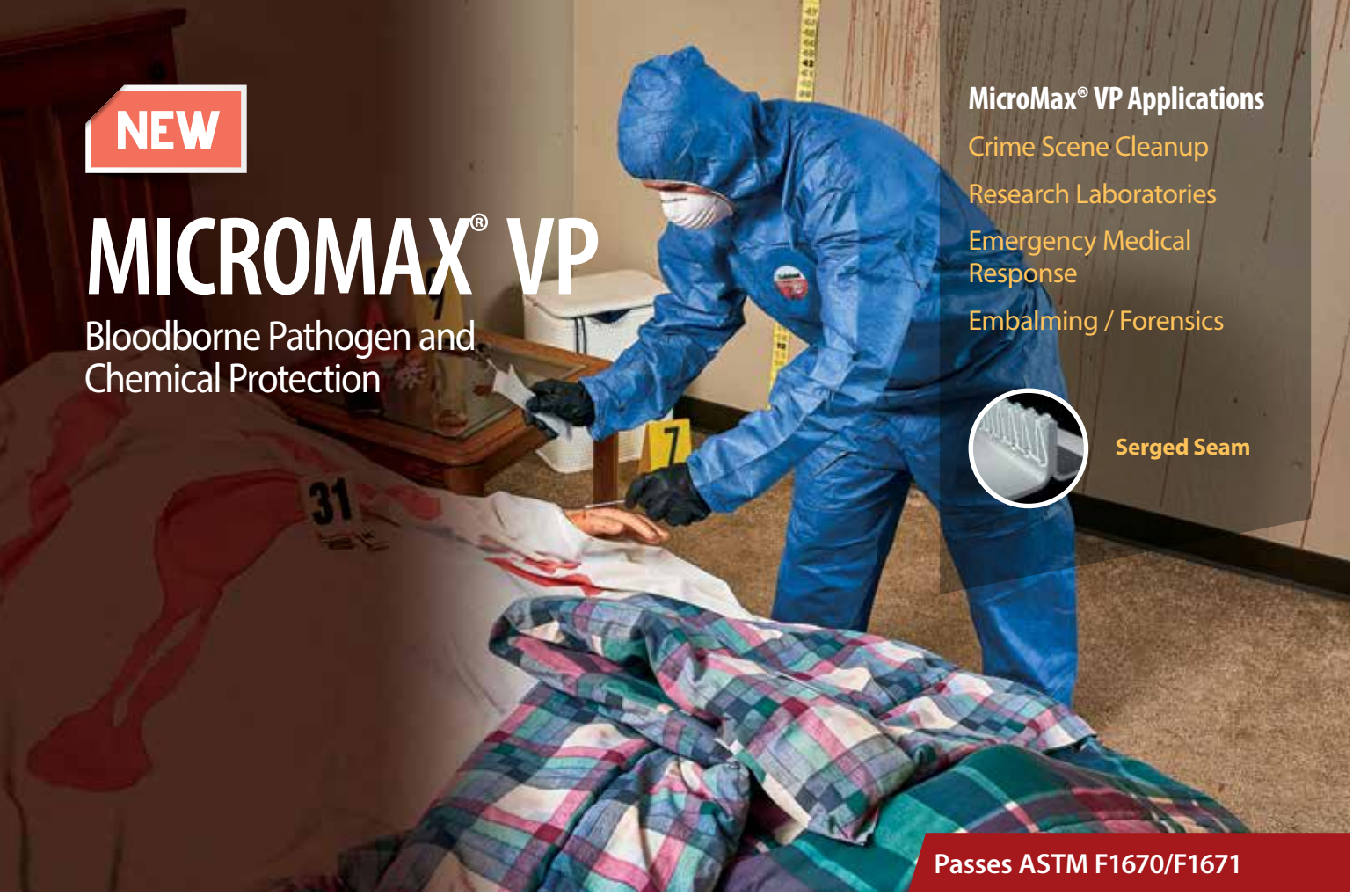
With manufacturing facilities in the United States, Mexico, China, Vietnam and India, Lakeland® is well positioned to source leading edge materials and produce the most advanced garments available to any region of the globe.

Lakeland's use of advanced technology doesn't stop with product development and design. Lakeland's customers have access to leading edge data and information to assist with proper product selection, calculate safe-use times and even model the effects of environmental changes and how they influence chemical permeation rates.

We Design, We Develop, We Manufacture, and We Deliver.

All to **Protect Your People®**

Lakeland®
Protect Your People®



NEW

MICROMAX® VP

Bloodborne Pathogen and Chemical Protection

MicroMax® VP Applications

Crime Scene Cleanup

Research Laboratories

Emergency Medical Response

Embalming / Forensics

Serged Seam

Passes ASTM F1670/F1671

MicroMax®VP is specifically designed to protect when the risk of blood, body fluids, bloodborne pathogens and viral contamination are the greatest. Ideal for use in crime labs, crime scene clean up and by emergency response personnel.

- Protective hood
- Seamless front reduces risk of contaminant exposure
- Taped storm flap protects zipper
- Elastic back for more comfortable fit
- Passes ASTM F1670/F1671 for Blood and Viral Protection

MicroMax® VP Physical Properties

Physical Property	Test Method	Units	Test Results
Material Thickness	ASTM D1777		15 mil
Material Weight	ASTM D3776		80 gsm
Tensile Strength MD	ASTM D5034	lbs.	36.30 lbs.
Tensile Strength CD	ASTM D5034	lbs.	24.15 lbs.
Elongation MD	ASTM D5034	%	59 Avg.
Elongation CD	ASTM D5034	%	71 Avg.
Water Vapor Transmission Rate	ASTM E96		16 g/sq. meter/ 24 hrs. avg.
Bursting Strength Hydraulic Method	ISO 13938-1		29.4 psi avg.
Burn Test 45°	CPSC16 CFR 1610		Pass
Surface Resistance Requirement for BS EN1149-5:2008 is ≤2.5 x 10^9 Ω.	EN1149	Ω	The test sample meets the requirement 2.4 X 10^8

MicroMax® VP Liquid Penetration Data

Physical Property	Test Method	Test Results
Liquid Penetration Using Synthetic Blood	ASTM F1670	Pass
Viral Penetration using ϕX174 bacteriophage suspension	ASTM F1671	Pass

MicroMax® VP ASTM F903 Liquid Penetration Data

Physical Property	Test Method	Test Results
Methanol	ASTM F903	Pass
Ethyl Acetate	ASTM F903	Pass
Sulfuric Acid (97%)	ASTM F903	Pass
Tetrahydrofuran	ASTM F903	Pass
Sodium Hydroxide	ASTM F903	Pass
Acetone	ASTM F903	Pass
Hydrofluoric Acid	ASTM F903	Pass
Acetonitrile	ASTM F903	Pass

For Fentanyl Test Results using ASTM D6978 refer to page 10

MicroMax® VP - Premium Protection from High-Risk Contaminants!

Protective hood

Seamless front reduces the risk of possible contamination from liquid penetration

Taped storm flap keeps contaminants away from zipper

Elastic back gives a more comfortable fit and helps prevent rip-outs

MicroMax® VP Configurations

Coverall MVP414
- Zipper closure
- Attached hood
- Boots
- Elastic wrists

Sizes: S – 5X
Case Pack: 25

Coverall MVP428
- Zipper closure
- Attached hood
- Elastic wrists
- Elastic ankles

Sizes: S – 5X
Case Pack: 25

Available with attached boots to help prevent cross-contamination during an event

NEW

CLEANMAX®

Cleanroom Apparel

CleanMax® Applications

Cleanrooms

Pharmaceutical Compounding

Bound Seam

EN ISO 13982-1 :2004 +A1:2010 | EN 13034 :2005 +A1:2009 | EN 1073-2:2002 TIL = Class 1 | EN 14126:2003 (Type 5B, 6B)

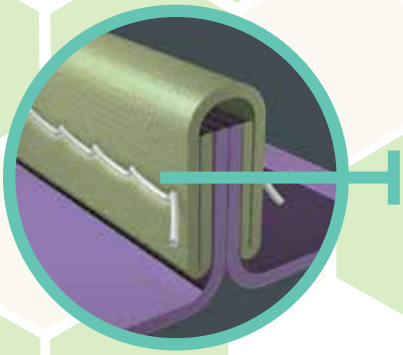
CE 0321

Available in Clean Manufactured or Clean Sterile configurations

STERILE R Irradiation Sterilization

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
- IEST-RP-CC003 Category I Particle Cleanliness
- Latex and Silicone Free
- Compatible with ISO Class 4 -8 Cleanrooms and all Controlled Environments
- Individually packaged and protective outer bag for ante areas



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 than simple serged seams.

CleanMax™ Physical Properties

Physical Property	Test Method	Units	Results
Basis Weight	ASTM D3776	oz/y^2	1.55 oz/y^2
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/ft^2
Water Vapor Transmission	ASTM 96-80	g/m^2-24hrs	663.38
Bacterial Filtration Efficiency	ASTM F2101	%	99.999%
Particle Filtration Efficiency	ASTM F2299	%	99.999%

Both CleanMax® Clean Manufactured and CleanMax® Sterile meet IEST-RP-C003 Category I particulate cleanliness standards and are ready for immediate use in ISO Class 4 – 8 Cleanrooms

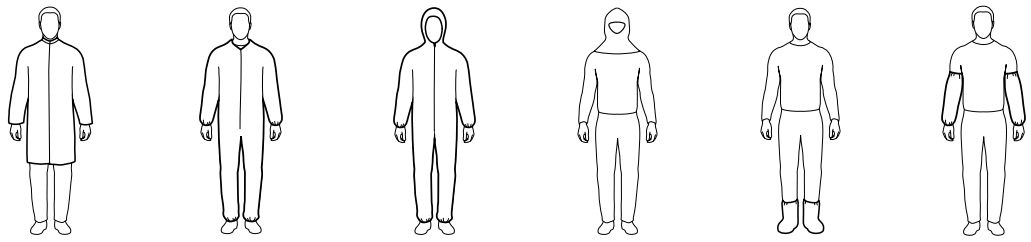
Lakeland® Industries has spent over 30 years being an industry leader protecting people in the workplace and now we've extended our expertise to protect both your people and your cleanroom and/or controlled environment. CleanMax® is a high-quality microporous laminate material that is lightweight and breathable but is impervious to liquids, harsh chemicals and microorganisms.

Both CleanMax® Clean Manufactured and CleanMax® Sterile meet IEST-RP-C003 Category I particulate cleanliness standards and are ready for immediate use in ISO Class 4 – 8 Cleanrooms. All sterile garments are gamma radiation sterilized to a level of 10^{-6} SAL (Sterility Assurance Level). These garments provide excellent comfort as well as protection, so you can easily don and doff your garments to reduce excursions and risk of contamination.

Clean Sterile Garments and Packaging

CleanMax™ Clean Sterile garments are sterile to a sterility assurance level of 10^{-6} SAL, and are compatible with ISO Class 4-8 Cleanrooms and all Controlled Environments

CleanMax® Configurations



CTL191 | CTL417 | CTL428 | CTL713 | CTL903 | CTL850-18

Clean Manufactured Garments

Frock – CTL191CM
- Mandarin collar
- Zipper closure
- No pockets
- Tunneled elastic wrists with thumb loops

Sizes: M – 5X
Case Pack: 30

Coverall – CTL417CM
- Zipper closure
- Tunneled elastic on wrists (with thumb loops), ankles, and back half of waist

Sizes: M – 5X
Case Pack: 25

Coverall – CTL428CM
- Zipper closure
- Attached hood
- Tunneled elastic on wrists (with thumb loops), ankles, and back half of waist

Sizes: M – 5X
Case Pack: 25

Hood – CTL713CM
- Covers shoulders
- One size
- Ties to customize fit

Case Pack: 100

Boot Cover – CTL903CMP
- Tunneled elastic top
- 19" high
- Non-skid Vinyl sole

Sizes: S/M, L/XL, 2X
Case Pack: 50 pair

Sleeve CTL850CSM-18
- Bound seams
- Tunneled elastic
- Thumb loops

Size: 18" length
Case Pack: 50 pair

Clean Sterile Garments

STERILE R Irradiation Sterilization

Clean Sterile
- Certificate of Radiation included
- Gamma radiation indicator dots on each package
- IPA resistant ink

Coverall – CTL417CS
- Zipper closure
- Tunneled elastic on wrists (with thumb loops), ankles, and back half of waist

Sizes: M – 5X
Case Pack: 25

Coverall – CTL428CS
- Zipper closure
- Attached hood
- Tunneled elastic on wrists (with thumb loops), ankles, and back half of waist

Sizes: M – 5X
Case Pack: 25

Hood – CTL713CS
- Covers shoulders
- One size
- Ties to customize fit

Case Pack: 100

Boot Cover – CTL903CSP
- Tunneled elastic top
- 19" high
- Non-skid Vinyl sole

Sizes: S/M, L/XL, 2X
Case Pack: 50 pair

Sleeve CTL850CSP-18
- Bound seams
- Tunneled elastic
- Thumb loops

Size: 18" length
Case Pack: 50 pair

CleanMax® Features and Benefits

Clean Manufactured Garments

Garments that are clean manufactured offer significantly less particle counts in contrast to garments that are not clean manufactured.

Smooth Storm Flap for Added Level of Protection

Very few disposable cleanroom garments have the added protection of a placket storm flap. Covering the zipper further protects the critical chest and front area of the garment from potential particulate breakthrough. Additionally, our storm flap has finished seams so there are no exposed raw edges.

Thumb Loops

Plastic wrists with thumb loops help secure the coveralls and frocks in place to prevent the potential exposure of skin while worn during normal activities.

Chemical Penetration Resistance

CleanMax® offers chemical penetration resistance to oils, bleach and 50 percent sodium hydroxide.

Premium Packaging Means Less Wrinkles, Less excursions

Garments are individually packaged and expertly folded to prevent excessive wrinkling and the potential for increased excursions.

Get the added safety of CleanMax®, which offers resistance to blood and body fluid penetration, viral penetration and bloodborne pathogens!

All 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 break through and protection from strike through than simple serged seams.

Smooth surface area prevents particles from sticking

CleanMax® garments are smoother than other leading brands, which means particulates are less likely to harbor on the garment surface.

Cuffed ankle allows for six inches of freedom

Expertly folded to reduce surface contamination during the donning process, the cuffed ankle provides six inches of freedom when you are stepping into the gown

Download our FREE Disposable Cleanroom Garment Guide!

lakeland.com/us/cleanroom-guide

Disposable Cleanroom Suits: Tips for Cleanroom Apparel Selection

Confidence in your cleanroom starts with understanding how to select the right disposable apparel for your unique needs. Part of the benefit of working with Lakeland® is ongoing access to our team of cleanroom industry experts. In just a few minutes, we will work with you to determine the type of garment required for your application and environment, and discuss how we can help you protect your team effectively with clean-manufactured garments.

Applications for CleanMax® Cleanroom Apparel

CleanMax® Sterile

- Aseptic or Terminally Sterile Cleanroom Environments
- ISO Class 5-8 Cleanroom
- Sterility assurance level of 10^{-6} SAL

Cleanmax® Manufactured

- ISO Class 5-8 or below Non-Aseptic Cleanrooms or Controlled Environments

Garment Configurations

Apparel	ISO 8	ISO 7	ISO 6	ISO 5 Non-Sterile	ISO 5 Sterile (Aseptic)	ISO 4	ISO 3	
Hair cover	R	R	R	R	R	R	R	AS
Barrier gloves	AS	AS	AS	AS	R	R	R	R
Facial cover	AS	AS	AS	R	R	R	R	AS
Hood	AS	AS	AS	R	R	R	R	AS
Frock	R	R	AS	AS	NR	NR	NR	NR
Coverall	AS	AS	R	R	R	R	R	R
Shoe cover	R	R	AS	AS	NR	NR	NR	NR
Boot	AS	AS	R	R	R	R	R	R
Typical Frequency of Change*	**2X/week**	**2X/week**	**3X/week**	**1X/day**	**Per Entry**	**Per Entry**	**Per Entry**	**Per Entry**

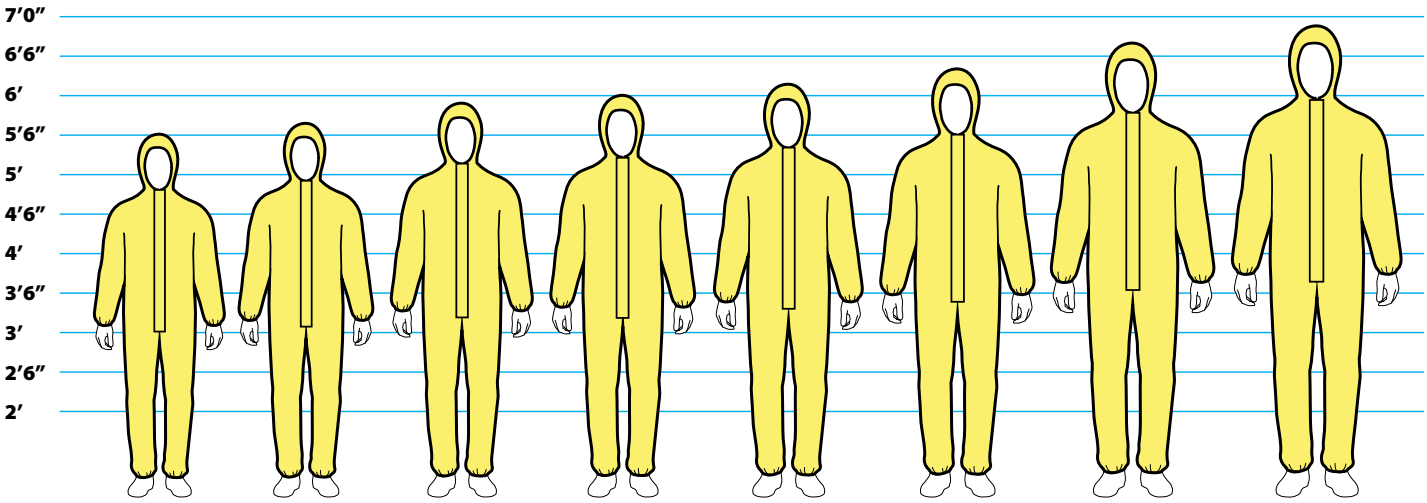
Chart shows Lakeland® garments relevant to ISO 5. Recommendations from IEST-RP-CC003.
R = Recommended, **NR** = Not Recommended, **AS** = Application Specific

CleanMax® vs. Reusables: Which is Better?

Each time a cleanroom garment is handled, a chance for contamination occurs. A reusable garment goes through multiple steps in the laundering process leading to greater risk of contamination.

Choose Lakeland® CleanMax® and feel secure in your investment in your most critical assets; your people, your controlled environment and your product

Lakeland® Brand Disposable/Chemical Sizing Guide



	S	M	L	XL	2XL	3XL	4XL	5XL
Height:	Up to 5'6"	Up to 5'7"	Up to 5'9"	Up to 6'0"	Up to 6'3"	Up to 6'5"	Up to 6'7"	Up to 6'9"
Weight:	Up to 110 lbs	Up to 130 lbs	Up to 150 lbs	Up to 180 lbs	Up to 220 lbs	Up to 250 lbs	Up to 280 lbs	Up to 320 lbs

The above chart is a suggested guide for garment selection. Proper fit varies with individual body shape and allowances should be made for clothing that will be worn underneath the garment. Always choose the larger size should you fall in between the suggested guidelines or are uncertain on which size to select.

Critical Protection - Tested Performance

Hazard Type	Lakeland® Brand	Test Method	Test Results
Blood and Infectious Agent	MicroMax® NS	ISO 16604:2004 Protection against Blood and Body Fluids	Pass Class 6 (Maximum Level)
		ISO 22611:2003 Protection against Biologically Contaminated Aerosols	Pass Class 3 (Maximum Level)
Bloodborne Pathogens	MicroMax® NS	ASTM F1670 Liquid Penetration to Synthetic Blood	Pass
	MicroMax® VP	ASTM F1671 Viral Penetration ϕX174 Bacteriophage Suspension	Pass
Pesticide Protection	MicroMax® NS	ASTM F903 Penetration Testing – Diazinon (Round Up)	Pass
Isocyanate Based Paint	MicroMax® NS	ASTM F903 Penetration Testing	Pass
Ammonia – 99% Anhydrous Gas (CAS Number 7664-41-7)	Pyrolon® CBFR	ASTM F739 Permeation Testing	>480 minutes

Fentanyl - Testing per ASTM D6978

Lakeland® Brand	Test Drug and Concentration	Minimum Breakthrough Detection Time (Specimen 1/2/3) (Minutes)	Steady State Permeation Rate (Specimen 1/2/3) (µg/cm2/minute)	Other Observations
MicroMax VP*	Fentanyl Citrate Injection, 100 mcg/2mL	>240	NA	Slight swelling; no degradation
ChemMax® 1**	Fentanyl Citrate Injection, 100 mcg/2mL	>240	NA	Slight swelling; no degradation

**** MicroMax® VP fabric holds out liquid Fentanyl, but is only recommended for Fentanyl in powder form due to serged seam construction***

***** ChemMax® 1 has >240 min hold out for liquid Fentanyl; Taped/Sealed Seam Garments are recommended for Fentanyl in liquid form***

Users should also ensure the gloves they are using for chemotherapy have been tested against the most recent standards. The current standard for exam gloves used in chemotherapy is ASTM D6978-05 "Standard Practice for Assessment of Resistance of Medical Gloves to Permeation by Chemotherapy Drugs.

Prior to ASTM D6978-05 many exam gloves were tested against ASTM F739 "Resistance of Protective Clothing Materials to Permeation by Liquids or Gases Under Conditions of Continuous Contact". ASTM D6978-05 uses ASTM F739 as a test method, but has a chemical permeation requirement that is 10 times more stringent than what is required by ASTM F739. Users of gloves tested under ASTM D6978-05 have a higher level of confidence that the gloves they are using are tested to the current, more stringent ASTM standard."

Lakeland® Brand Product Range Overview

CHEMICAL PROTECTION

Interceptor® Plus	Interceptor® Plus achieves the highest levels of chemical protection required for extremely hazardous areas, including Level A HazMat response. All supported by PermaSURE.
ChemMax® 4 Plus	ChemMax® 4 Plus fabric incorporates a 6 layer protective barrier system and is supported by the PermaSURE Toxicity Risk Modeler Software Application.
ChemMax® 3	ChemMax® 3 barrier film is soft and durable while providing superior protection from both chemicals and chemical warfare agents, all while backed by the PermaSURE database of 4,000+ chemicals.
ChemMax® 2	ChemMax® 2 fabric is built with the proven protection of Saranex 23P barrier film to provide superior and economical chemical protection.
ChemMax® 1	ChemMax® 1 fabric is comprised of a polyethylene (PE) barrier film and a continuous filament polypropylene nonwoven fabric. Lightweight and durable protection for most industrial acid and base chemicals.

FLAME RESISTANT PROTECTION

Pyrolon® CBFR	Pyrolon® CBFR offers the highest level of chemical protection for harsh environments that also require Flame Resistant apparel due to flash fire concerns.
Pyrolon® CRFR	Pyrolon® CRFR fabric utilizes a 2.5 mil proprietary FR barrier film to provide chemical protection for primary FR/AR garments that won't melt or drip in a flash fire scenario.
Pyrolon® Plus 2	Pyrolon® Plus 2 provides highly breathable, secondary FR protection, to keep primary FR/AR garments free from contamination by dirt, grease, oil, hydraulic fluid and other dry particulate, aerosol and light liquid hazards.

DISPOSABLE PROTECTION

MicroMax® VP	MicroMax®VP garments are specifically tailored for protection from the risk of blood, body fluids and bloodborne pathogens. ASTM F1670/F1671 for blood and viral and designed with no exposed seams or points for liquid penetration on the forward-facing portion of the garment.
MicroMax®	The MicroMax® family of fabrics are all based upon a spunbond polypropylene layer with a laminated microporous film. Dry particulate filtration to 1.0 micron and passes ASTM F1670/F1671 for bloodborne pathogens make the MicroMax line ideal choice blood, grease, paint, pesticides and light chemical splash.
SafeGard®	SafeGard® fabric is a layering of Spunbond-Meltblown-Spunbond polypropylene filaments to provide breathable protection against aerosols and light liquids, as well as particle filtration down to 10.0 microns.
ZoneGard®	ZoneGard® fabric is lightweight, highly breathable polypropylene fabric. Ideal protection for dirt, dust and other dry particulates.

Lakeland® Brand Protection Levels and Seam Styles

Product Applications	General Protection				Aerosol/Spray			
	Dirt, Oil and Grease	Hazardous Dry Particulate	Non-Hazardous Liquids	Welding, Cutting and Grinding	Non-Hazardous Liquids	Paint, Hazardous Liquids	Dry Particles	Flammable Environment
MicroMax® NS	●	●	●		●	●	●	
MicroMax® NS Cool Suit	●	●	●		●	●	●	
MicroMax® VP								
CleanMax®								
SafeGard® SMS	●	●	●		●	●	●	
Pyolon® Plus 2 *	●	●		●		●	●	●
ZoneGard® Polypropylene	●				●			
Pyrolon® CRFR *		●	●		●	●		●
Pyrolon CBFR		●	●					●
ChemMax® 1		●	●		●	●	●	
ChemMax® 2					●	●	●	
ChemMax® 3						●		
ChemMax® 4 Plus								
Interceptor® Plus**								

* Must be worn over thermally protective clothing, such as flame resistant cottons, aramids or mono acrylics.
** Interceptor meets the requirements of NFPA 1991 limited flash fire for escape only option.

Product Seam Availability

Product	Serged Seam	Bound Seams	Heat Sealed Seams	Heat Sealed Plus Seams
MicroMax® NS	●			
MicroMax® NS Cool Suit	●			
MicroMax® VP	●			
CleanMax®		●		
SafeGard® SMS	●			
Pyolon® Plus 2	●			
ZoneGard® Polypropylene	●			
Pyrolon® CRFR			●	
Pyrolon CBFR			●	
ChemMax® 1	●	●	●	
ChemMax® 2		●	●	
ChemMax® 3			●	
ChemMax® 4 Plus			●	
Interceptor® Plus			●	●

The Seam You Choose is Determined By **Your Work Environment** and **Your Potential Risk of Hazard Exposure!**

Chemical Splash			Hazmat		Critical Environment / Biohazard				
Low Exposure, Low Risk	High Exposure, High Risk	Flammable Liquids	Hazmat, Maritime	Hazmat Non-Certified	Paint Booth	Bloodborne Pathogens	Waste Water Treatment	Flash Fire Chemical	Clean Room
●					●	●	●		
					●				
●									
									●
								●	
●	●	●		●				●	
●	●	●		●				●	
●	●			●	●	●	●		
●	●			●	●	●	●		
	●		●	●		●	●		
				●		●	●		
	●		●	●				●	

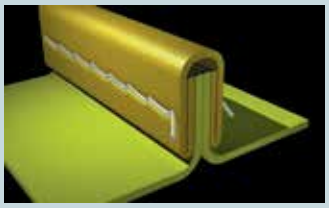
Serged Seam
***Low Risk** of Hazardous Exposure*

Bound Seam
***Moderate Risk** of Hazardous Exposure*

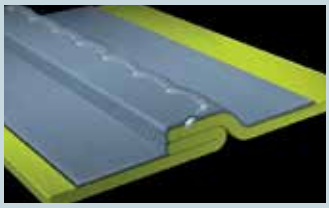
Heat Sealed Seam
***High Risk** of Hazardous Exposure*

Heat Sealed Plus Seam
***Maximum Risk** of Hazardous Exposure*

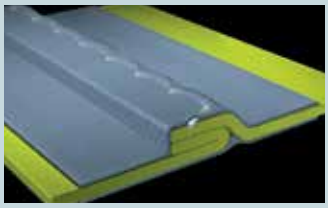
A serged seam joins two pieces of material with a thread that interlocks. This is an economical stitching method for general applications. This stitching method is generally not used for chemical protective clothing. It is more commonly found on disposable clothing where dry particulates are a concern.



A bound seam joins two pieces of material with an overlay of similar material and is chain stitched through all layers for a clean finished edge. This provides increased holdout of liquids and dry particulates.



A heat sealed seam is sewn and then sealed with a heat activated tape. This method provides liquid proof seams, and is especially useful for Level A and B chemical protective clothing.



This is the ultimate and strongest seam that Lakeland® offers. The seam is sewn and then heat sealed on the outside and inside to offer the highest strength and chemical resistance.

MICROMAX® NS

Microporous protection from dirt, grease, grime and light chemical splash!

MicroMax® NS Applications

Light Chemical Handling

Sandblasting/Abrasives

Dirt, Oil and Grease

Serged Seam

MicroMax® NS Features:

- Economical
- Lightweight
- Features high MVTR (Moisture Vapor Transmission Rate)
- Protection from dry particulates and light liquid splash

NEW

Retail Vending Convenience Pack!

Lakeland® now offers select styles of our MicroMax® NS coveralls in a convenient, vacuum-sealed package. Each pack contains a single coverall, ideally sized for most vending applications, retail or showroom display, and conveniently sized to be a part of any specialty use or preparedness kit.

Package Size: Approximately 4.5" wide x 6.6" high x 2" deep
Available Sizes: SM – 5X
Packaging: 50 individual packs per case

Available Styles:
CNS412V, CNS414V, CNS417V, CNS428V

MicroMax® NS Physical Properties

Physical Property	Test Method	Units	Test Results
Basis Weight	ASTM D3776	oz/y^2	1.55 oz/y^2
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/ft^2
Surface Resistance	EN1149	Ω	Pass

MicroMax® NS ASTM F903 Penetration Data

Chemical Tested	Concentration %	Test Time – Minutes	Test Results
Diazinon	100%	60	Pass
Motor Oil-40 wt.	100%	60	Pass
Bleach-household	100%	60	Pass
Isocyanate Based Paint	100%	60	Pass
Sodium Hydroxide	50%	60	Pass
Sodium Hypochlorite	10%	60	Pass
Synthetic Blood	Challenge Fluid Liter – 3.20 x 108 (PFU/mL)	Assay Results PFU/mL <1	Pass

MicroMax® NS Configurations

Lab Coat
CTL101
- Snap closure
- 2 pockets
- Long sleeve

Sizes: S – 5X
Case Pack: 30

Lab Coat
CTL104
- Snap closure
- 2 pockets
- Long sleeve
- Elastic wrists

Sizes: S – 5X
Case Pack: 30

Lab Coat
CTL112
- Snap closure
- No pockets
- Long sleeve
- Elastic wrists

Sizes: S – 5X
Case Pack: 30

Lab Coat
CTL140
- Snap closure
- No pockets
- Long sleeves

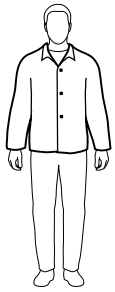
Sizes: S – 5X
Case Pack: 30

Frock
CTL190
- Mandarin collar
- 5 snaps
- No pockets
- Elastic wrists

Sizes: S – 5X
Case Pack: 30

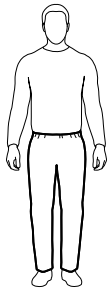
Frock
CTL191
- Mandarin collar
- Zipper closure
- No pockets
- Elastic wrists

Sizes: S – 5X
Case Pack: 25



Shirt
CTL201
- Snap closure
- Long sleeves

Sizes: S – 5X
Case Pack: 50



Pants
CTL301
- Elastic waist

Sizes: S – 5X
Case Pack: 50

Coverall
CNS412
- Zipper closure

Sizes: S – 5X
Case Pack: 25

Coverall
CNS414
- Zipper closure
- Attached hood
- Boots

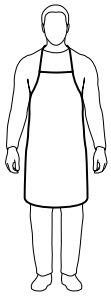
Elastic wrists
Sizes: S – 5X
Case Pack: 25

Coverall
CNS417
- Zipper closure
- Elastic wrists
- Elastic ankles

Sizes: S – 5X
Case Pack: 25

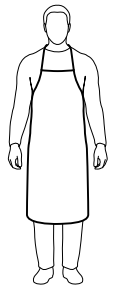
Coverall
CNS428
- Zipper closure
- Attached respirator fit hood
- Elastic wrists
- Elastic ankles

Sizes: S – 5X
Case Pack: 25



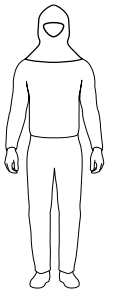
Apron
CTL601
- Sewn ties

Sizes: 28″w x 36″ l
Case Pack: 100



Apron
CTL603
- Sewn ties

Sizes: 28″w x 44″l
Case Pack: 100

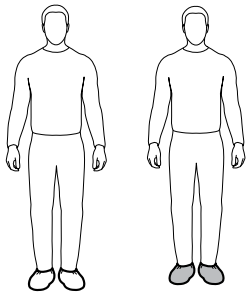


Hood
CTL713
- Elastic face
- Covers shoulders
- One size

Case Pack: 250

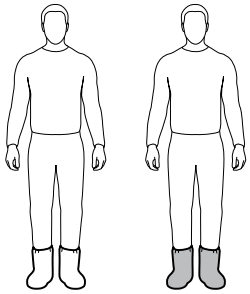
Sleeve
CTL850P-18
- Elastic ends

Sizes: 18″ length
Case Pack: 100 pair



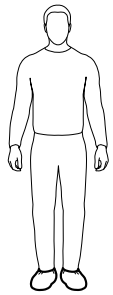
Shoe Cover
CTL901P
901NSP (non-skid)
- Elastic ankles
- Style 901 – standard version
- Style 901NS – gray non-skid version

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



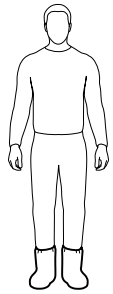
Boot Cover
CTL903P
903NSP (non-skid)
- Elastic top
- 17″ high
- Style 903 – standard version
- Style 903NS – gray non-skid version

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



Shoe Cover
CTL904P
- Vinyl sole

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



Boot Cover
CTL905P
- Elastic top
- 17″ high
- Vinyl sole

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

MICROMAX® NS COOL SUIT

Breathable back panel maximizes comfort!

MicroMax® NS Cool Suit Applications

Paint Spray

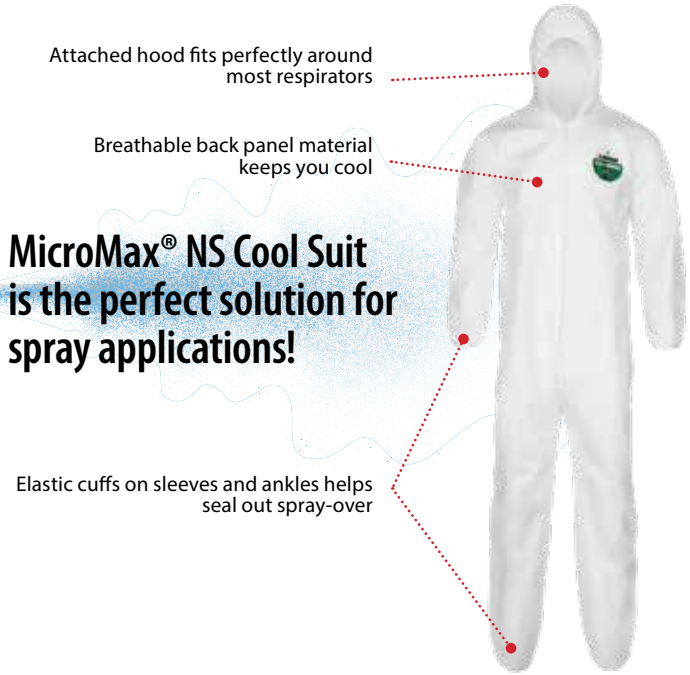
Sandblasting/Abrasives

Power Washing

Serged Seam

MicroMax® NS Cool Suit Features:

- SMS back panel increases breathablity and and provides a barrier to particulates and aerosol mist
- Elastic back waist provides improved comfort
- Front and sides material provides protection from dirt, liquids and light chemical splash
- Storm flap over zipper protects against splashes



MicroMax® NS Cool Suit is the perfect solution for spray applications!

MicroMax® NS Cool Suit Configurations

Coverall
C0L412
- Zipper closure

Sizes: S – 5X
Case Pack: 25

Coverall
C0L428
- Zipper closure
- Attached hood
- Elastic wrists
- Elastic ankles

Sizes: S – 5X
Case Pack: 25

The Cool Suit breathable back panel provides efficient cooling while the front and sides offer light barrier protection from liquids and splash

MicroMax® NS Cool Suit ... All-In-One Protection and Comfort!

Protective hood

Front and sides composed of microporous film over a polypropylene substrate provides barrier protection

Storm flap over zipper protects against splashes

SMS back panel increases breathability and particulate barrier

Elastic back waist provides improved comfort

MicroMax® NS Cool Suit Physical Properties

Physical Property	Test Method	Units	Test Results
Basis Weight	ASTM D3776	oz/y^2	1.85 oz/y^2
Strip Tensile MD	ASTM D5035	lbs.	11.3 lbs.
Strip Tensile XD	ASTM D5035	lbs.	6 lbs.
Tensile Strength MD	ASTM D5034	lbs.	24.4 lbs.
Tensile Strength XD	ASTM D5034	lbs.	16.2 lbs.
Trap/Tear MD	ASTM D1117	lbs.	10.8 lbs.
Trap/Tear XD	ASTM D1117	lbs.	5.4 lbs.
Ball Burst	ASTM 3787	lbs.	25.1 lbs.
Taber Abrasion	ASTM 3884	cycles	1062 cycles
Mocon-Breathability			5031
Air Permeability	ASTM D737	cfm/ft2	<0.562
Surface Resistance	EN1149	Ω	Pass
Hydrostatic Resistance	ASTM 4157	cfm	127+
Flammability Pass		lbs.	16 cfr 1610 cii

MicroMax® NS Cool Suit ASTM F903 Penetration Data

Chemical Tested	Concentration %	Test Time – Minutes	Test Results
Diazinon	100%	60	Pass
Motor Oil-40 wt.	100%	60	Pass
Bleach-household	100%	60	Pass
Isocyanate Based Paint	100%	60	Pass
Sodium Hydroxide	50%	60	Pass
Sodium Hypochlorite	10%	60	Pass
Blood	Challenge Fluid Liter – 3.20 x 108 (PFU/mL)	Assay Results PFU/mL <1	Pass

SAFEGARD®

Lightweight, breathable protection from 3 tough layers

SafeGard® Applications

Dirt, Oil and Grease

Aerosol Mist

Serged Seam

SafeGard® Features:

- Deluxe pattern coveralls feature
  - – hip pocket
  - – chest pocket
  - – elastic back
- Aerosol mist protection
- Ideal for dry particulate
- Breathable Protection

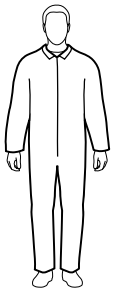
SafeGard® Physical Properties

Physical Property	Test Method	Units	Test Results
Basis Weight	ASTM D3776	oz/y^2	1.5 oz/y^2
Grab Tensile MD	ASTM D5034	lbs.	25 lbs.
Grab Tensile XD	ASTM D5034	lbs.	20 lbs.
Trap Tear MD	ASTM D5733	lbs.	7.9 lbs.
Trap Tear XD	ASTM D5733	lbs.	6.7 lbs.

SafeGard® Configurations

Labcoat
C8101
- Snap closure
- 2 pockets
- Long sleeve
- White only

Sizes: S – 5X
Case Pack: 30



Coverall
C8412
- Zipper closure

Sizes: S – 5X
Case Pack: 25

Coverall
C8414
- Zipper closure
- Attached hood
- Boots
- Elastic wrists

Sizes: S – 5X
Case Pack: 25

Coverall
C8417
- Zipper closure
- Elastic wrists
- Elastic ankles

Sizes: S – 5X
Case Pack: 25

Coverall
C8428
- Zipper closure
- Attached hood
- Elastic wrists
- Elastic ankles

Sizes: S – 5X
Case Pack: 25

Most SafeGard® SMS garments are available in white or Navy Blue. For Navy Blue, add a "NSF" at the end of the style number.

ZONEGARD®

The Breathable, Lightweight Protection of Polypropylene

ZoneGard® Applications

Dirt, Oil and Grease

Serged Seam

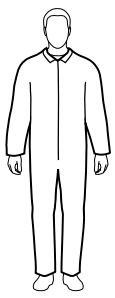
ZoneGard® Features:

- Highly breathable
- Great for dirty, grimy environments
- Economical

ZoneGard® Physical Properties

Physical Property	Test Method	Units	Test Results
Basis Weight	ASTM D3776	oz/y²	1.25 oz/y²

ZoneGard® Configurations



Coverall C2412
- Zipper closure

Sizes: S – 5X
Case Pack: 25

Coverall C2414
- Zipper closure
- Attached hood
- Boots
- Elastic wrists

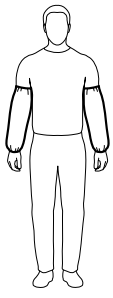
Sizes: S – 5X
Case Pack: 25

Coverall C2417
- Zipper closure
- Elastic wrists
- Elastic ankles

Sizes: S – 5X
Case Pack: 25

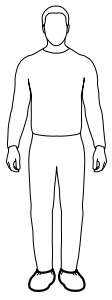
Coverall C2428
- Zipper closure
- Attached hood
- Elastic wrists
- Elastic ankles

Sizes: S – 5X
Case Pack: 25



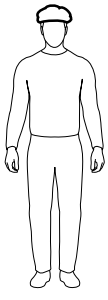
Sleeve C2850P-18
- Elastic ends

Sizes: 18" length
Case Pack: 100 pair



Shoe Cover C2901P
- Elastic ankles

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



Bouffant Hat 801-21
- Bouffant hat

Sizes: 21"
Case Pack: 100

ZoneGard® coveralls are available in White or Navy. For Navy, add an "N" to the end of the style number

CHEMMAX® 1

Your First Level of Chemical Protection

ChemMax® 1 Applications

Waste Water Treatment

High and Low PH Chemicals

Hazardous Liquid Spray

Serged Seam

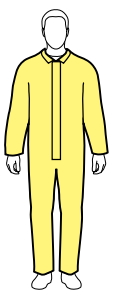
Bound Seam

Heat Sealed Seam

ChemMax® 1 is constructed with a unique polyethylene barrier film and a continuous filament polypropylene non-woven fabric. ChemMax® 1 garments bar many harmful contaminants from penetrating to inner clothing. Available with serged, bound and sealed seams for scalability.

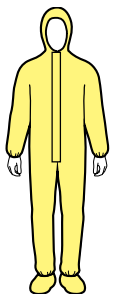
ChemMax® 1 provides economical, lightweight protection against most industrial acid and base chemicals. Bloodborne pathogen and viral protection make it a cost-effective option for waste water treatment facilities. ChemMax® 1 also meets the requirements of EN-1149 for Electrostatic Properties.

ChemMax® 1 Coveralls



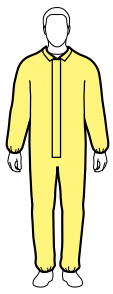
Coverall
C1S412Y
Serged Seam
- Zipper with storm flap

Sizes: S – 5XL
Case Pack: 25



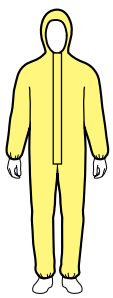
Coverall
C1S414Y
Serged Seam
C1B414Y
Bound Seam
- Zipper with storm flap
- Attached hood
- Attached boots
- Elastic wrists

Sizes: S – 5XL
Case Pack: 25



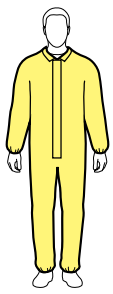
Coverall
C1S417Y
Serged Seam
C1B417Y
Bound Seam
- Zipper with storm flap
- Elastic wrists
- Elastic ankles

Sizes: S – 5XL
Case Pack: 25



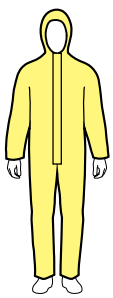
Coverall
C1S428Y
Serged Seam
C1B428Y
Bound Seam
- Zipper with storm flap
- Attached hood
- Elastic wrists
- Elastic ankles

Sizes: S – 5XL
Case Pack: 25



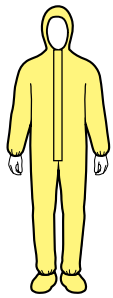
Coverall
C1T110Y
Sealed Seam
- Collar
- Storm flap over zipper.
- Elastic wrists
- Elastic ankles

Sizes: S – 5XL
Case Pack: 6



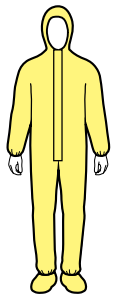
Coverall
C1T130Y
Sealed Seam
- Zipper with storm flap
- Elastic face
- Elastic wrists
- Elastic ankles

Sizes: S – 5XL
Case Pack: 6



Coverall
C1T150Y
Sealed Seam
- Zipper with storm flap
- Attached hood
- Elastic wrists
- Attached boots

Sizes: S – 5XL
Case Pack: 6



Coverall
C1T151Y
Sealed Seam
- Respirator-fit hood
- Storm flap over zipper
- Elastic face and wrists
- Attached boots

Sizes: S – 5X
Case Pack: 6

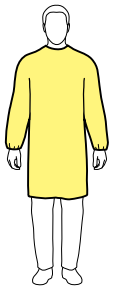
ChemMax® 1 Brand Features

Infectious Disease and Bloodborne Pathogen tested (sealed seam configuration)

Available in multiple seam configurations

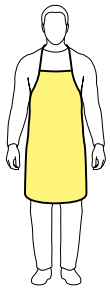
Excellent Protection for High and Low PH Chemicals (Acids and Bases)

ChemMax® 1 Configurations



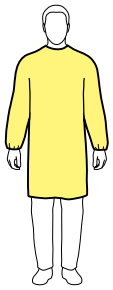
Gown
C1S27Y
- Open back
- Long sleeve
- Elastic wrists
- Sewn ties

Sizes: 30″ x 40″
Case Pack: 6



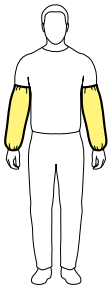
Apron
C1S650Y
- Sewn ties

Sizes: 28″ x 36″
Case Pack: 100



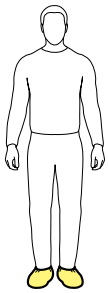
Apron
C1B657Y
- Long sleeves
- Waist ties

Sizes: 28″ x 53″
Case Pack: 50



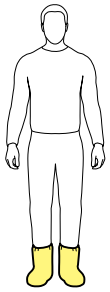
Sleeve
C1S850YP-18
- Elastic ends

Sizes: 18″ length
Case Pack: 100 pair



Shoe Cover
C1S901YP
- Elastic ankles

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



Boot Covers
C1S903YP
Serged Seam
- Elastic top
- 17″ high

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

ChemMax® 1 Physical Properties

Property	Test Method	Units	ChemMax® 1
Basis Weight	ASTM D3776	oz./sq. yd	2.29
Grab Tensile MD	ASTM D5034	pounds	35
Grab Tensile XD		pounds	27
Trapezoidal Tear MD	ASTM D5733	pounds	13.8
Trapezoidal Tear XD		pounds	14.2
Ball Burst	ASTM D751	pounds	25.5

Permeation Data for ASTM Recommended List of Chemicals for Evaluating Protective Clothing Materials (ASTM F1001)

Challenge Chemical	CAS Number	Physical State	ChemMax® 1
Acetone	67-64-1	Liquid	imm.
Acetonitrile	75-05-8	Liquid	imm.
Ammonia Gas	7664-41-7	Gas	imm.
1,3-Butadiene Gas	106-99-0	Gas	imm.
Carbon Disulfide	75-15-0	Liquid	imm.
Chlorine Gas	7782-50-5	Gas	imm.
Dichloromethane	75-09-2	Liquid	imm.
Diethylamine	109-89-7	Liquid	imm.
Dimethyl Formamide	68-12-2	Gas	40 minutes
Ethyl Acetate	141-78-6	Liquid	imm.
Ethylene Oxide Gas	75-21-8	Gas	imm.
n-Hexane	110-54-3	Liquid	imm.
Hydrogen Chloride Gas	7647-01-0	Gas	imm.
Methanol	67-56-1	Liquid	imm.
Methyl Chloride Gas	74-87-3	Gas	imm.
Nitrobenzene	98-95-3	Liquid	45 minutes
Sodium Hydroxide, 50%	1310-73-2	Liquid	320 minutes
Sulfuric Acid, 96%	7664-93-9	Liquid	315 minutes
Tetrachloroethylene	127-18-4	Liquid	imm.
Tetrahydrofuran	109-99-9	Liquid	imm.
Toluene	108-88-3	Liquid	imm.

For Fentanyl Test Results using ASTM D6978 refer to page 10

ND = None Detected
> = greater than
L = liquid
G = gas
Numbers reported are averages of samples tested by the ASTM F739 test method. Sample results vary and therefore averages for these results are reported.

Warnings:
1. ChemMax® 1 is not flame resistant and should not be used around heat, flame sparks, or in potentially flammable or explosive environments.
2. Garments made of ChemMax® 1 should have slip resistant or anti-slip materials on the outer surface of boots, shoe covers or other garment surfaces in conditions where slipping could occur.

Note: *Chemical Resistance Data is in accordance with ASTM F-739 test method. Testing is performed on fabric samples only, not finished garments. Sources for all test data are independent laboratory conditions and not actual use conditions.*

CHEMMAX® 2

ChemMax® 2 Applications

Chemical Mixing and Handling

Environmental Clean Up

Hazardous Material Remediation

Bound Seam

Heat Sealed Seam

Quality, Value, Durability with the Proven Protection of Saranex® 23P Barrier Film

ChemMax® 2 is useful in protecting against hazardous chemicals and contaminants found in the work place and is a superior and economical chemical protective suit developed using the knowledge and expertise that you have come to expect from Lakeland®.

The unparalleled strength and softness features a Saranex® 23P film on two layers of a unique bi-component spunbond non-woven substrate which provides protection for chemical mixing and handling, environmental clean-up, hazardous materials remediation and response, pharmaceutical manufacturing, spray painting and general industry.

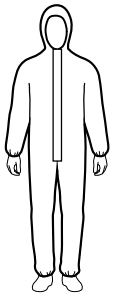
ChemMax® 2 Coveralls

Coverall
C2B414
Bound Seam
- Zipper with storm flap
- Attached hood
- Attached boots
- Elastic wrists

Sizes: S – 5XL
Case Pack: 12

Coverall
C2B417
Bound Seam
- Zipper with storm flap
- Elastic wrists
- Elastic ankles

Sizes: S – 5XL
Case Pack: 12



Coverall
C2B428
Bound Seam
- Zipper with storm flap
- Attached hood
- Elastic wrists
- Elastic ankles

Sizes: S – 5XL
Case Pack: 12

Coverall
C2T110
Sealed Seam
- Collar
- Storm flap over zipper.
- Elastic wrists
- Elastic ankles

Sizes: S – 5XL
Case Pack: 6

Coverall
C2T132
Sealed Seam
- Respirator fit hood
- Zipper with storm flap
- Elastic face
- Elastic wrists
- Elastic ankles

Sizes: S – 5XL
Case Pack: 6

Coverall
C2T151
Sealed Seam
- Respirator fit hood
- Zipper with storm flap
- Attached hood
- Elastic wrists
- Attached boots

Sizes: S – 5XL
Case Pack: 6

Coverall
C2T165
Sealed Seam
- Respirator fit hood
- Storm flap over zipper
- Attached boots with boot flaps
- Velcro® closure over zipper

Sizes: S – 5XL
Case Pack: 6

ChemMax® 2 Brand Features

Moderate to high level chemical protection

Bound and sealed seam configurations

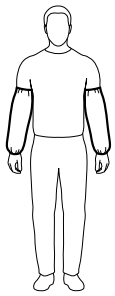
2-layer (PP/PE) substrate

20% stronger than competitive fabrics

ChemMax® 2 Configurations

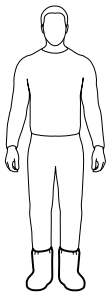
Apron
C2B657
- Long sleeves
- Waist ties

Sizes: 28" x 53"
Case Pack: 50



Boot Covers
C2T740P
Sealed Seam
- Elastic top
- 17" high (extends over calf

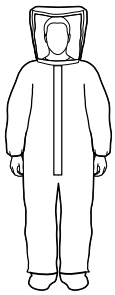
Sizes: S/M, LG/XL, 2X
Case Pack: 12 pair



Sleeve
C2B850P-18
- Elastic ends

Sizes: 18" length
Case Pack: 100 pair

ChemMax® 2 Encapsulated Suits



Level B Encapsulated Suit
C2T400 - Flat Back
- Rear entry
- Flat back
- 48" zipper
- Storm flap
- 20 mil Vinyl face shield
- Elastic wrists
- 1 exhaust port with shroud
- Air tube inlet
- Attached sock boots with boot flap
- Suit is not gas/vapor tight

Sizes: M – 4XL
Case Pack: 3

Level B Encapsulated Suit
C2T450 - Expanded Back
- Rear entry
- Expanded back
- 48" zipper
- Double storm flap with hook and loop
- 20 mil Vinyl face shield
- Elastic wrists
- 2 exhaust ports with shroud
- Air tube inlet
- Attached sock boots with boot flap
- Suit is not gas/vapor tight

Sizes: M – 4XL
Case Pack: 3

ChemMax® 2 Physical Properties

Property	Test Method	Units	ChemMax® 2
Basis Weight	ASTM D3776	oz./sq. yd	4.3
Grab Tensile MD	ASTM D5034	pounds	47
Grab Tensile XD		pounds	33.9
Trapezoidal Tear MD	ASTM D5733	pounds	29.95
Trapezoidal Tear XD		pounds	12.47
Ball Burst	ASTM D751	pounds	48
Surface Resistance	EN1149	Ω	Pass

Permeation Data for ASTM Recommended List of Chemicals for Evaluating Protective Clothing Materials (ASTM F1001)

Challenge Chemical	CAS Number	Physical State	ChemMax® 2
Acetone	67-64-1	Liquid	9
Acetonitrile	75-05-8	Liquid	<15
Ammonia Gas	7664-41-7	Gas	15
1,3-Butadiene Gas	106-99-0	Gas	>480
Carbon Disulfide	75-15-0	Liquid	imm.
Chlorine Gas	7782-50-5	Gas	>480
Dichloromethane	75-09-2	Liquid	imm.
Diethylamine	109-89-7	Liquid	imm.
Dimethyl Formamide	68-12-2	Gas	18
Ethyl Acetate	141-78-6	Liquid	21
Ethylene Oxide Gas	75-21-8	Gas	24
n-Hexane	110-54-3	Liquid	21
Hydrogen Chloride Gas	7647-01-0	Gas	>410
Methanol	67-56-1	Liquid	>480
Methyl Chloride Gas	74-87-3	Gas	>480.
Nitrobenzene	98-95-3	Liquid	45
Sodium Hydroxide, 50%	1310-73-2	Liquid	>480
Sulfuric Acid, 98%	7664-93-9	Liquid	>480
Tetrachloroethylene	127-18-4	Liquid	imm.
Tetrahydrofuran	109-99-9	Liquid	imm.
Toluene	108-88-3	Liquid	imm.

ND = None Detected
> = greater than
L = liquid
G = gas
Numbers reported are averages of samples tested by the ASTM F739 test method. Sample results vary and therefore averages for these results are reported.

Warnings:
1. ChemMax® 2 is not flame resistant and should not be used around heat, flame sparks, or in potentially flammable or explosive environments.
2. Garments made of ChemMax® 2 should have slip resistant or anti-slip materials on the outer surface of boots, shoe covers or other garment surfaces in conditions where slipping could occur.

Note: *Chemical Resistance Data is in accordance with ASTM F-739 test method. Testing is performed on fabric samples only, not finished garments. Sources for all test data are independent laboratory conditions and not actual use conditions.*

NEW

ChemMax® 2 Bound Seam coveralls now feature blue binding for easier identification.

DISPOSABLE FR

Why Wear an FR Disposable Over Your Primary FR Clothing?

Flame resistant disposables are intended to provide liquid and dust protection when worn over a primary thermal protective garment. To keep your new, primary FR clothing clean and free of contaminants, make sure that you are selecting the correct disposable garment for your application.

Standard disposables are made from polypropylene or polyethylene (or both). These are thermoplastic derivatives of oil, both of which are flammable materials that will ignite, melt and burn. Any fabric that melts and drips in the event of an electric arc or flash fire should not be worn over primary FR garments.

Repellency is also a critical attribute to consider when selecting an FR disposable garment. Understand the repellency performance of your disposable garment to ensure that possible flammable contaminants are not soaking through to your primary FR clothing. Make sure that your FR disposable has the repellency to keep grease, hydraulic fluid and other harmful contaminants from compromising your primary protective clothing.

Don't be misled by others citing the NFPA 701 curtain and drapery standard for their flammability performance. All Pyrolon® products are designed to be worn over primary protective flame resistant clothing, are tested to ASTM F1930 and meet the NFPA 2113 requirements for section 5.1.9.

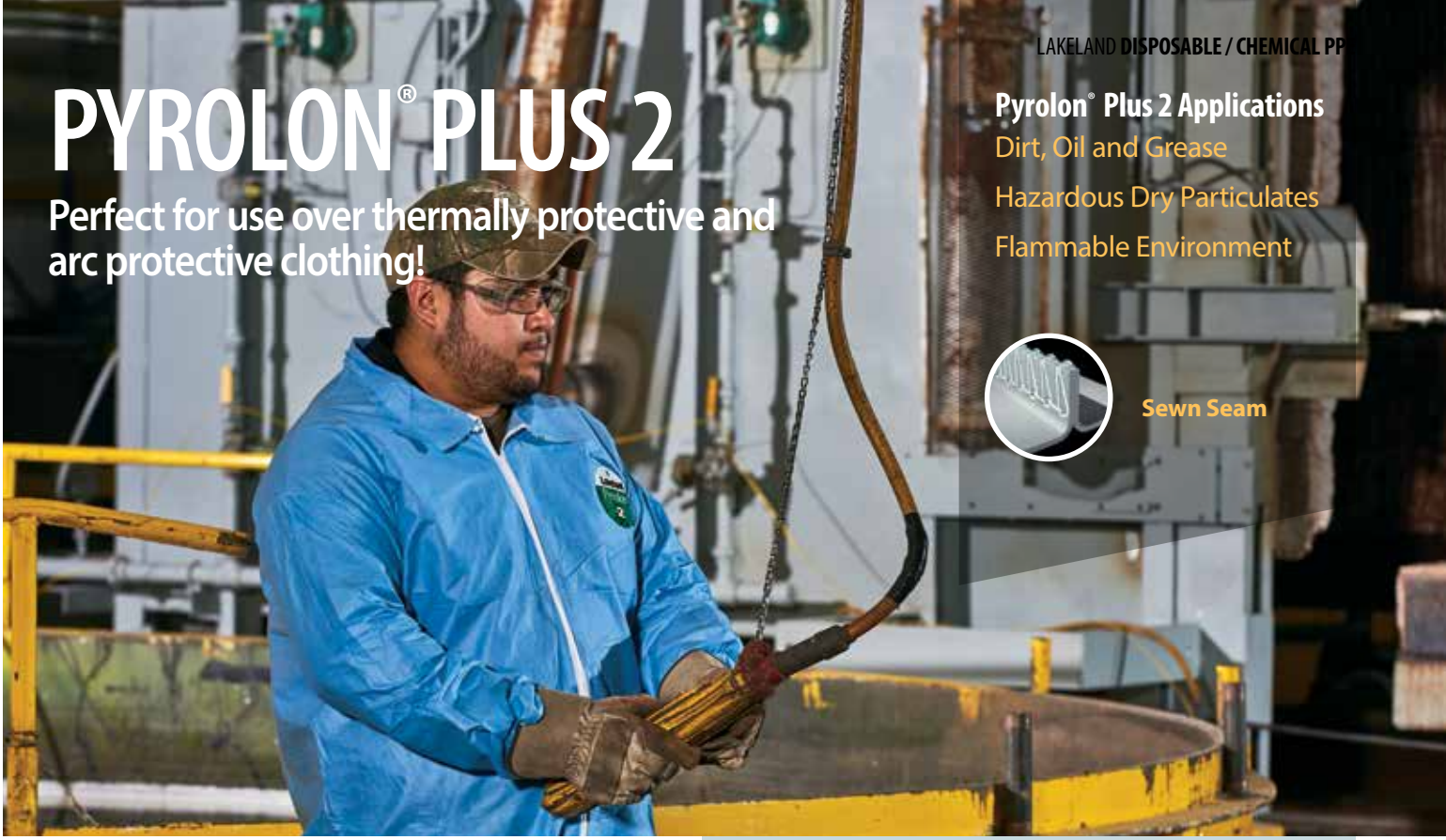
Know the Facts!

Get the FR protection you demand. Lakeland® has produced a video which demonstrates the superiority of Pyrolon® Plus 2 vs. competing fabrics. Don't settle for substandard FR PPE that can be downright dangerous to wear. Visit the Lakeland® website at www.lakeland.com, or scan the QR code on this page.

lakeland.com/us/pyrolon-alt

PYROLON® PLUS 2

Perfect for use over thermally protective and arc protective clothing!



Pyrolon® Plus 2 Applications

Dirt, Oil and Grease

Hazardous Dry Particulates

Flammable Environment

Sewn Seam

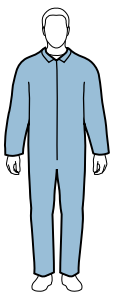
- Second generation Pyrolon® Plus 2 offers wet or dry strength superior to that provided by other traditional Flame Resistant disposables
- Meets the NFPA 2113 requirements for section 5.1.9.
- Pyrolon® Plus 2 is breathable, making this a cool and comfortable garment to wear.

Pyrolon® Plus 2 can be used in work environments where hazardous or non-hazardous contaminants may be present. Pyrolon® Plus 2 quality standards meet ANSI/ISEA 101.

Pyrolon® Plus 2 Physical Properties

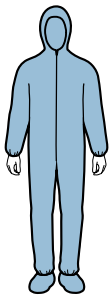
Physical Property	Test Method	Units	Test Results
Basis Weight	ASTM D3776	oz./sq. yd	2.4 oz/y^2
Grab Tensile MD	ASTM D5034	lbs.	31.0 lbs.
Grab Tensile XD	ASTM D5034	lbs.	20.0 lbs.
Trapezoidal Tear MD	ASTM D5733	lbs.	4.5 lbs.
Trapezoidal Tear CD	ASTM D5733	lbs.	5.6 lbs.
Air Permeability	ASTM D737	cfm	52 cfm
Char Length MD	ASTM D6413	inches	3.70 inches
Char Length XD	ASTM D6413	inches	3.70 inches
Ignition Point	–	degrees F	1000˚ F
Surface Resistance	EN1149	Ω	Pass

Pyrolon® Plus 2 Configurations



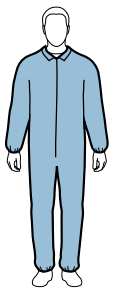
Coverall
7412
7412B
- Zipper closure

Sizes: S – 5X
Case Pack: 25



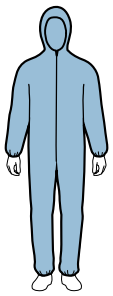
Coverall
7414
7414B
- Zipper closure
- Attached hood
- Boots
- Elastic wrists

Sizes: S – 5X
Case Pack: 25



Coverall
7417
7417B
- Zipper closure
- Elastic wrists
- Elastic ankles

Sizes: S – 5X
Case Pack: 25

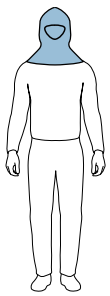


Coverall
7428
7428B
- Zipper closure
- Attached hood
- Elastic wrists
- Elastic ankles

Sizes: S – 5X
Case Pack: 25

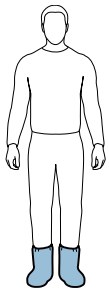
Labcoat
7101
7101B
- Snap closure
- 2 pockets
- Long sleeve

Sizes: S – 5X
Case Pack: 30



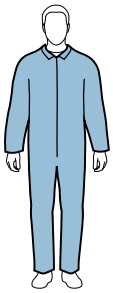
Hood
7713B
- Elastic face
- Covers shoulders
- One size
- Available in Blue only

Case Pack: 250



Boot Cover
7903BP
- Elastic top
- 17" high
- Available in Blue only

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



Pyrolon® Plus2 coveralls and lab coats are available in White or Blue. For Blue, add an "B" to the end of the style number

PYROLON® CRFR

Chemical Resistance and Flame Resistance in one Disposable Protective Garment

Pyrolon® CRFR Applications

Petrochemical

Flammable Liquid Handling

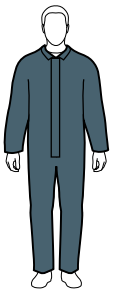
Drug Lab Investigation

Heat Sealed Seam

Pyrolon CRFR is the Chemical Resistant and Flame Resistant disposable option designed to protect your Primary FR and ARC Rated Garments when chemical splash is a concern. Pyrolon CRFR garments bar contaminating flammables like paint, oil and grease, hazardous liquids and contaminants, and dry particulates from penetrating to inner Primary Protective Garments, potentially saturating them with flammable substances.

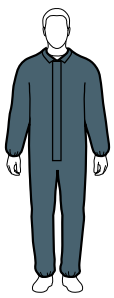
Pyrolon CRFR is designed to be worn over Primary FR/AR Protective Clothing for environments where flash fire is a concern. Utilizing Pyrolon CRFR when both chemical splash and flash fire are a concern helps the wearer meet the NFPA 2113 requirements for section 5.1.9.

Pyrolon® CRFR Coveralls



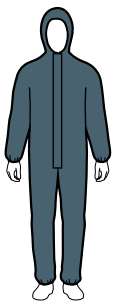
Coverall 51100
- Collar
- Storm flap over zipper
- Open wrists
- Open ankles
- Hemmed cuff

Sizes: S - 5XL
Case Pack: 6



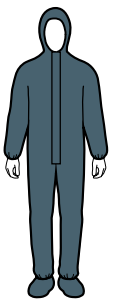
Coverall 51110
- Collar
- Storm flap over zipper
- Elastic wrists
- Elastic ankles

Sizes: S - 5XL
Case Pack: 6



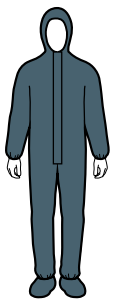
Coverall 51130
- Hood
- Storm flap over zipper
- Elastic face
- Elastic wrists and ankles

Sizes: S - 5XL
Case Pack: 6



Coverall 51150
- Hood
- Storm flap over zipper
- Elastic face and wrists
- Attached boots

Sizes: S - 5XL
Case Pack: 6



Coverall 51166
- Respirator fit hood
- Storm flap over zipper
- Elastic wrists
- Attached Boots

Sizes: S – 5XL
Case Pack: 6

Pyrolon® CRFR Brand Features:

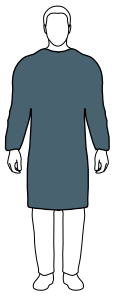
Combines Chemical Resistance with Flame Resistance

Does Not Melt or Drip

Meets the NFPA 2113 Requirements for Section 5.1.9

Penetration Data for ASTM F903 Standard Chemicals

Pyrolon® CRFR Configurations

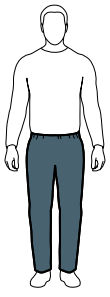


Apron
51730
- Long sleeve
- Elastic wrists
- 32" length

Sizes: S-4X
Case Pack: 12

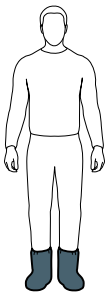
Jacket
51250
- Collar
- Elastic wrists
- Double storm flap
- Hook and loop closure

Sizes: S - 5XL
Case Pack: 6



Pant
51300 Pant
- Elastic waist
- Elastic ankles

Sizes: M-4X
Case Pack: 6



Boot Covers
51740P
- Elastic top
- 17" high

Sizes: One size
Case Pack: 12 pair

Pyrolon® CRFR helps reduce Total Body Burn!

Pyrolon® CRFR third party testing by North Carolina State University to ASTM F1930 confirms:

Material	Body Burn Results
6.5 oz. Westex® DH alone	16.4% total body burn
Pyrolon® CRFR over 6.5 oz. Westex® DH	15.84% total body burn

Pyrolon® CRFR Physical Properties, 2.5 Mil

Physical Property	Test Method	Units	Test Results
Basis Weight		oz./sq. yd	4.92
Grab Tensile MD		lbs.	34
Grab Tensile XD		lbs.	27
Mullen Burst		lbs./sq.in.	35
Char Length MD		inches	4.7
Char Length XD		inches	4.5
Afterflame		seconds	<2
Charge Decay	NFPA 99		Pass
Surface Resistance	EN1149	Ω	Pass

Pyrolon® CRFR Penetration Data, 2.5 Mil, ASTM F903

Challenge Chemical	CAS Number	Physical State	Penetration Result
Acetone	67-64-1	Liquid	>60
Acetonitrile	75-05-8	Liquid	>60
Benzene	71-43-2	Liquid	>60
Carbon Disulfide	75-15-0	Liquid	>60
Diesel Fuel	N/A	Liquid	>60
Diethylamine	109-89-7	Liquid	>60
Crude Oil	N/A	Liquid	>60
Ethyl Acetate	141-78-6	Liquid	>60
n-Hexane	110-54-3	Liquid	>60
Hexamethylene Diiso-cyanate	822-06-0	Liquid	>60
Hydrochloric Acid	7647-01-0	Liquid	>60
Methanol	67-56-1	Liquid	>60
Methyl Ethyl Ketone (MEK)	78-93-3	Liquid	> 60
Methyl Isobutyl Ketone	108-10-1	Liquid	>60
Monochlorobenzene	108-90-7	Liquid	>60
n-Butyl Acetate	123-86-4	Liquid	>60
Orthodichlorobenzene, Grade F	95-50-1	Liquid	>60
Polychlorinated Biphenyl (PCB)	92-52-4	Liquid	> 60
Sodium Hydroxide, 50%	1310-73-2	Liquid	>60
Sulfuric Acid, 98%	7664-93-9	Liquid	45
Surrogate Gasoline (Toulene 50%) (Isooctane 50%)	108-88-3 540-84-1	Liquid	> 60
Tetrachloroethylene	127-18-4	Liquid	>60
Toluene	108-88-3	Liquid	>60
Trichlorobenzene Mixture	Mixture	Liquid	>60
Xylene	1330-20-7	Liquid	>60

Note: Chemical Resistance Data is in accordance with ASTM F903 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® CBFR

Advanced Chemical Barrier and Flame Resistance for the Highest Chemical Hold-Out

Pyrolon® CBFR Applications

Ammonia

Hydrofloric Acid

Petrochemical

Heat Sealed Seam

Pyrolon CBFR - Advanced chemical protection and self extinguishing FR protection. Designed to be worn over primary FR protective clothing, for environments where both chemical exposures and flash fire are a concern. This advanced chemical barrier is self-extinguishing, won't melt or drip, and meets the NFPA 2113 requirements for section 5.1.9.

Pyrolon CBFR is your choice for protection in harsh chemical environments for the likes of Ammonia, Hydroflouric Acid and other serious chemicals where workers need chemical protection over primary FR protective garments.

Pyrolon® CBFR Brand Features:

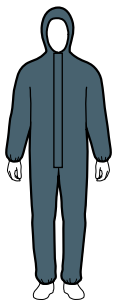
Combines Advanced Chemical Barrier with Flame Resistance

Higher Chemical Hold-out Than CRFR

Chemical Permeation Data Available

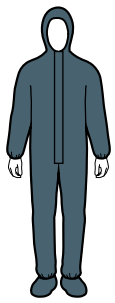
Lower Predicted Body Burn when Paired with Lakeland's 6.5 oz. Westex® DH FR Coverall

Pyrolon® CBFR Configurations



Coverall 52151
- Respirator-fit hood
- Storm flap over zipper
- Elastic face and wrists
- Attached boots

Sizes: S - 5XL
Case Pack: 6



Coverall 52132
- Respirator-fit hood
- Storm flap over zipper
- Elastic face, wrists and ankles

Sizes: S - 5XL
Case Pack: 6

Pyrolon® CB-FR Physical Properties Physical Properties

Physical Property	Test Method	Units	Test Results
Basis Weight	ASTM D3776	oz./sq. yd	7.16 oz/y2
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.
Surface Resistance	EN1149	Ω	Pass

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
Hydroflouric 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
Gases					
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. Westex® DH FR Coverall (includes the head)

6.5 oz. Westex® DH coverall alone – 16.4% Total Body Burn

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%
Overall Average			7.65%

PermaSURE® is a free, mobile-friendly online tool that models permeation rates and provides safe-use times by incorporating environmental, temperature and chemical exposure factors. It is a state-of-the-art technology developed initially by leading Polymer chemists for defense forces to quickly determine which suits are needed for various chemical warfare agents and dual use chemicals. It is based on the known molecular characteristics and behavior of 4000+ chemicals interacting with Lakeland's specific chemical fabrics.

- Helps determine which suit is optimal for the various chemicals used.
- Easy input of suit type, exposure time, temperature and chemical.
- Provides calculation of how much the chemical has permeated.
- Calculates safe-use time and takes into account environmental temperature and the toxicity thresholds of specific chemicals.
- Alarm sounds on mobile device when safe use time limit is being approached.
- Provides instant basic chemical hazard data and single-click links to detailed online safety data sheets.
- Over 4000 chemicals in the database.
- Robust documentation capabilities.

Understanding "Breakthrough" in Permeation Testing: How Long Am I Safe?

"Breakthrough" in Permeation test reports is often used to estimate a safe-use time, but according to the test standards, permeation testing is designed for fabric comparison only.

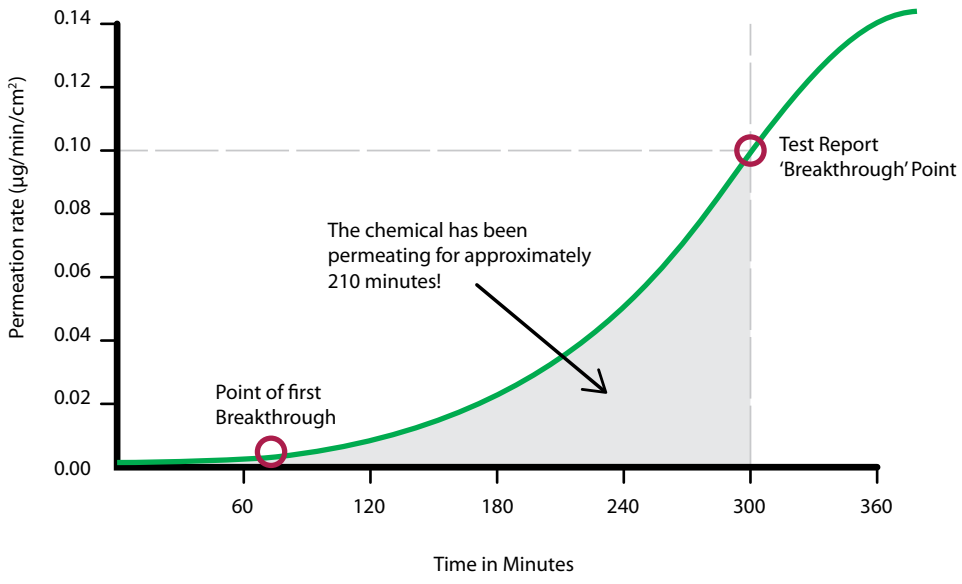
The use of permeation testing data can result in misleading conclusions about how long a worker is safe!

What does a permeation test tell you?

'Breakthrough' in a permeation test report is not recorded when the chemical first breaks through the fabric, but instead, when the permeation rate reaches 0.1ug/min/cm^2, and in the controlled environment of a lab with ambient temperature of 73° F.

What a permeation test *DOES NOT* tell you:

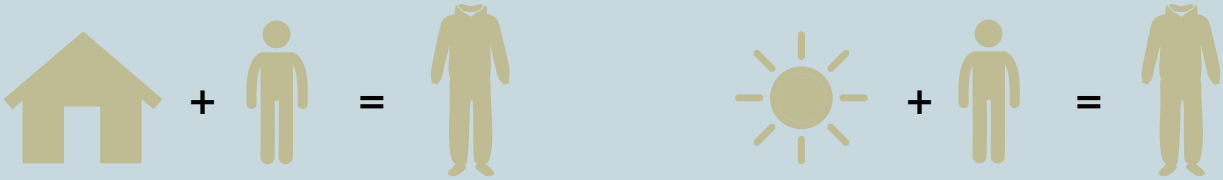
The first actual point of 'breakthrough' or exposure may occur well before the 'breakthrough' test report indicates, especially when environmental temperatures exceed 73° Fahrenheit.



Does a permeation test account for the following?

- "Real World" ambient or actual suit temperature? – **NO**
- Faster permeation at higher temperatures due to increased molecular volatility? – **NO**
- Toxicity level of the specific chemical? – **NO**
- Amount permeated? – **NO**

For Example:



Room Temperature 72° F + **Body Temperature 98.6° F** = **Suit Fabric Temperature 90° F**

Temperature Outside + **Body Temperature 98.6° F** = **100° F and Above**

If your worker is in an environment where the room temperature is 72° Fahrenheit and his body temperature is 98.6° Fahrenheit, the temperature of the suit fabric will quickly approach 90° F. Out in the sun in the summer, suit temperature can quickly soar well over 100° F. The permeation rate of many chemicals can increase exponentially with even a modest rise in temperature of the suit fabric.

Differences in the toxicity levels of chemicals mean that similar doses can vary significantly in how harmful they are. Toxicity must be taken into account when determining safe use times.

PermaSURE®

Recent modifications to NFPA 1991 highlight a paradigm shift from using "normalized breakthrough times," to compare fabrics, to cumulative permeate. Determining the amount of cumulative permeate moves us closer to determining the dosage the wearer is being exposed to and how that should best be accounted for.

Permeation and Temperature:

The concentration and temperature of a chemical plays a critical role in permeation rate.

Unless otherwise requested, all permeation testing is conducted at 73° F so that data is collected under constant conditions. This is important because the permeation test was designed and intended to be used for a relative comparison between different fabrics. This is clearly stated in the test method.

Important temperature considerations include:

- Higher environmental temperatures can result in accelerated breakthrough, while lower temperatures potentially can lead to a slower breakthrough for certain chemical and material combinations.
- Some chemicals are in a solid state at 73° Fahrenheit, making permeation testing data and safe-use time recommendations inapplicable.
- Work environment and body temperature, and their impact on garment temperature, are not considered when "Breakthrough" times are used as the sole indicator of safe use times.

To properly evaluate safe-use time, it is essential that you take the temperature factors for your unique working environment into consideration.

How Do You Calculate A Safe-Use Time?

Safe-use time must account for: specific chemical permeation behavior, chemical state, amount of chemical available for exposure, temperature, permeation rate, toxicity and area of suit likely to be exposed.

1 Calculate Volume Permeated	**Permeation Rate X**	**Duration of Exposure X**	**Area of Suit Exposed =**	**Volume Permeated**
	As permeation rate per unit area varies over time an average can be calculated - or use the maximum rate for a wide safety margin	The time the suit may be exposed to the chemical - how long the task will take.	The total area of the suit that might be contaminated.	
2 Compare with Chemical Toxicity Limit	**Is the volume permeated greater or less than the chemical toxicity limit?**			
	Volume Permeated < Toxicity Limit = SAFE		**Volume Permeated > Toxicity Limit = NOT SAFE**	
3 Consider Environmental Factors	**Chemical State**	**Room Temperature**	**Outside Temperature**	**Body Temperature**
	Evaluate environmental temperature to determine the exact effects on suit temperature and how that impacts permeation for the chemical being used and calculate a more accurate safe-use time.			

Lakeland's Innovative Technology Helps You Manage Risk by Accurately Monitoring Safe-Use Time

Make the best chemical protective garment selection with the ability to assess toxicity risk and better protect the health of your workers — for more than 4000 chemicals!

Traditional "breakthrough" testing data shows, that in the majority of cases, the performance of Lakeland® garments is as good or better than other brands' offerings.

In fact, Lakeland's ChemMax® Plus 3 & 4 and Interceptor Plus match or outperform the competition when it comes to:

- Cost
- Comfort
- Chemical Barrier
- Design features and options

But with Lakeland's ChemMax® Plus 3 & 4 and Interceptor Plus, you get the added bonus of PermaSURE®.

PermaSURE® is a free, mobile-friendly online tool that models permeation rates and provides safe-use times by incorporating environmental, temperature and chemical exposure factors. It is a state-of-the-art technology developed initially by leading Polymer chemists for defense forces to quickly determine which suits are needed for various chemical warfare agents and dual use chemicals. It is based on the known molecular characteristics and behavior of 4000+ chemicals interacting with Lakeland's specific chemical fabrics.

PermaSURE® provides users with both toxicity information and a guide as to how long one can be exposed to a chemical before harmful toxicity limits are reached. It is also an effective tool to aid safety professionals in collecting and recording the necessary documentation when an incident occurs. It allows for desktop contingency planning for spills and clean ups under varying climatic conditions so that procedures can be written for specific conditions.

PermaSURE® Fills a Great Need for Companies That:

- Need to know which suit is optimal for the various chemicals they use.
- For hazmat teams who may not know what the chemical is before they arrive on the scene, and must quickly determine what to wear.
- Reduces the uncertainty from variables that are not taken into account using breakthrough times or cumulative permeate, like the effect of temperature and toxicity, so that good decisions on what suit to wear and for how long are easier to make.

PermaSURE® Key Features:

- Easy input of suit type, exposure time, temperature and chemical.
- PermaSURE® provides calculation of how much the chemical has permeated.
- Calculates safe-use times and takes into account environmental temperature and the toxicity thresholds of specific chemicals.
- Alarm sounds on mobile device when safe use time limit is being approached.
- Provides instant basic chemical hazard data and single-click links to detailed online safety data sheets.
- Over 4000 chemicals in the database.
- Robust documentation capabilities.

PermaSURE®

Please contact a Lakeland® representative today to learn more about the ChemMax Plus line of products, PermaSURE® and to schedule a more detailed discussion on the benefits of choosing Lakeland® chemical protective clothing with the added safety of PermaSURE®.

CHEMMAX® 3

Advanced Chemical Protection for Industry, Emergency Response and Law Enforcement

ChemMax® 3 Applications

Toxic Industrial Chemicals

Chemical Warfare Agents

Fentanyl Protection

Heat Sealed Seam

ChemMax® 3 uses the latest technology to produce a superior chemical protective product. Durable and lightweight, ChemMax® 3 provides a barrier against a broad spectrum of toxic industrial chemicals, dual-use chemicals, chemical warfare agents and other harmful contaminants.

The multi-layer film is applied to a heavy polypropylene non-woven for increased strength and durability. The barrier film is significantly softer than other products on the market, resulting in a quiet, more comfortable garment.

ChemMax® 3 Coveralls

Coverall
C3T110
Sealed Seam
- Collar
- Storm flap over zipper.
- Elastic wrists
- Elastic ankles

Sizes: S – 5XL
Case Pack: 6

Coverall
C3T132
Sealed Seam
- Respirator-fit hood
- Zipper with storm flap
- Elastic face
- Elastic wrists
- Elastic ankles

Sizes: S – 5XL
Case Pack: 6

Coverall
C3T151
- Respirator-fit hood
- Storm flap over zipper
- Elastic face
- Elastic wrists
- Attached boots

Sizes: S – 5XL
Case Pack: 6

Coverall
C3T165
- Attached respirator-fit hood
- Double storm flap
- Hook and loop closure
- Elastic face and wrists
- Attached boots with boot flaps

Sizes: S – 5XL
Case Pack: 6

Coverall
C3T166
- Respirator fit hood
- Double storm flap over zipper
- Elastic wrists and ankles
- Velcro® closure over zipper

Sizes: S – 5XL
Case Pack: 6

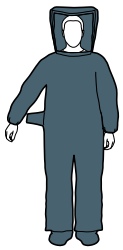
ChemMax® 3 Brand Features

Excellent chemical barrier

Chemical warfare agent tested

Fabric is lighter weight and more flexible than all major competitors

Encapsulated Suits



Encapsulated Suit
C3T400
- Rear entry/Flat back
- 48" zipper/Storm flap
- 20 mil Vinyl face shield
- Elastic wrists
- 1 exhaust port/ shroud
- Air tube inlet
- Attached sock boots with boot flap
- Suit is not gas/vapor tight

Sizes: S – 5XL
Case Pack: 1

Encapsulated Suit
C3T450 – Level B
- Rear entry
- Expanded back
- 48" zipper
- Double storm flap
- 20 mil Vinyl face shield
- Elastic wrists
- 2 exhaust ports/ shroud
- Attached sock boots with boot flap
- Suit is not gas/vapor tight

Sizes: S – 5XL
Case Pack: 1

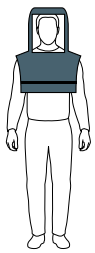
ChemMax® 3 Configurations

Jacket
C3T250
- Collar
- Elastic wrists
- Double storm flap
- Hook and loop closure

Sizes: S - 5XL
Case Pack: 6

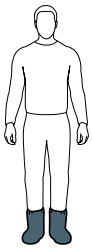
Pant
C3T320
- Elastic waist
- Elastic ankles

Sizes: M-4X
Case Pack: 6



Hood
Long Bib Style
C3T716
- Long Bib Style
- 20 mil Vinyl lens
- 1" hook and loop side straps

Case Pack: 250



Boot Covers
C3T740P
- Elastic top
- 17" high

Sizes: One size
Case Pack: 12 pair

ChemMax® 3 Physical Properties

Property	Test Method	Units	ChemMax® 3
Basis Weight	ASTM D3776	oz./sq. yd	4.5
Grab Tensile MD	ASTM D5034	pounds	58.7
Grab Tensile XD		pounds	42.2
Trapezoidal Tear MD	ASTM D5733	pounds	25.6
Trapezoidal Tear XD		pounds	19.8
Ball Burst	ASTM D751	pounds	54.5
Surface Resistance	EN1149	Ω	Pass

Permeation Data for ASTM Recommended List of Chemicals for Evaluating Protective Clothing Materials (ASTM F1001)

Challenge Chemical	CAS Number	Physical State	ChemMax® 3
Acetone	67-64-1	Liquid	>480
Acetonitrile	75-05-8	Liquid	>480
Ammonia Gas	7664-41-7	Gas	>480
1,3-Butadiene Gas	106-99-0	Gas	>480
Carbon Disulfide	75-15-0	Liquid	178
Chlorine Gas	7782-50-5	Gas	>480
Dichloromethane	75-09-2	Liquid	>480
Diethylamine	109-89-7	Liquid	imm.
Dimethyl Formamide	68-12-2	Gas	>480
Ethyl Acetate	141-78-6	Liquid	>480
Ethylene Oxide Gas	75-21-8	Gas	>480
n-Hexane	110-54-3	Liquid	>480
Hydrogen Chloride Gas	7647-01-0	Gas	>480
Methanol	67-56-1	Liquid	>480
Methyl Chloride Gas	74-87-3	Gas	>480.
Nitrobenzene	98-95-3	Liquid	>480
Sodium Hydroxide, 50%	1310-73-2	Liquid	>480
Sulfuric Acid, 98%	7664-93-9	Liquid	>480
Tetrachloroethylene	127-18-4	Liquid	>480
Tetrahydrofuran	109-99-9	Liquid	320
Toluene	108-88-3	Liquid	>480

ND = None Detected
> = greater than
L = liquid
G = gas
Numbers reported are averages of samples tested by the ASTM F739 test method. Sample results do vary and therefore averages for these results are reported.

Warnings:
1. ChemMax® 3 is not flame resistant and should not be used around heat, flame sparks, or in potentially flammable or explosive environments.
2. Garments made of ChemMax® 3 should have slip resistant or anti-slip materials on the outer surface of boots, shoe covers or other garment surfaces in conditions where slipping could occur.

Note: *Chemical Resistance Data is in accordance with ASTM F-739 test method. Testing is performed on fabric samples only, not finished garments. Sources for all test data are independent laboratory conditions and not actual use conditions.*

Powered By PermaSURE®

CHEMMAX® 4 PLUS

Superior, Advanced Chemical Protection. Now Supported by PermaSURE®

ChemMax® 4 Plus Applications

Hazardous Materials Response

Toxic Industrial Chemicals

Petrochemical

Heat Sealed Seam

ChemMax 4 Plus is the next generation of ChemMax® 4 fabrics and provides a new gateway to extensive chemical data like you've never had before. ChemMax 4 Plus is superior, advanced chemical protection, and is at the top-of-the-line for chemical protective clothing. Constructed with a 6-layer protective system, it will stand up to the toughest and most hazardous chemical environments.

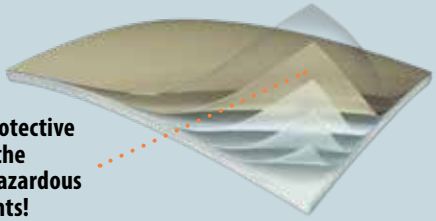
ChemMax 4 Plus products offer heat sealed seams with a range of configurations including coveralls with respirator-fit hoods and encapsulated suits, all compatible with the PermaSURE® Toxicity Risk Modeller.

CHEMMAX 4 PLUS

What's All The Fuss About Plus?!

Advanced Engineering, that's what!

ChemMax® 4 Plus has a chemical barrier that gives higher holdout times than our previous ChemMax® 4 material!



Lakeland's 6 Layer Protective System stands up to the toughest and most hazardous chemical environments!

ChemMax® 4 Plus Encapsulated Configurations

Level B Encapsulated Suit
C4T400Y

- Rear entry
- Flat back
- 48" zipper
- Double storm flap
- 20 mil Vinyl face shield
- Elastic wrists
- 1 exhaust port with shroud
- Air tube inlet
- Attached sock boots with boot flap
- Suit is not gas/vapor tight

Sizes: M – 4XL
Case Pack: 3

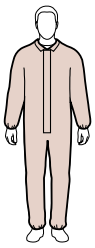
Level B Encapsulated Suit
C4T450T – Tan
C4T450Y – Yellow

- Rear entry
- Expanded back
- 48" zipper
- Double storm flap
- 20 mil Vinyl face shield
- Elastic wrists
- 2 exhaust ports with shroud
- Air tube inlet
- Attached sock boots with boot flap
- Suit is not gas/vapor tight

Sizes: M – 4XL
Case Pack: 3

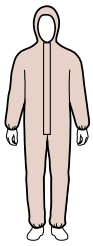
Available Colors: Yellow and Tan

ChemMax® 4 Plus Configurations



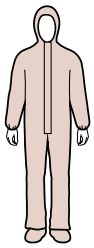
Coverall
C4T110T
- Collar
- Storm Flap over Zipper
- Elastic Wrists and Ankles

Sizes: S – 5X
Case Pack: 6



Coverall
C4T132T – Tan
C4T132Y – Yellow
- Respirator Fit Hood
- Storm Flap over zipper
- Elastic face, wrists and Ankles

Sizes: S – 5X
Case Pack: 6

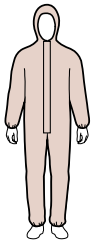


Coverall
C4T151T – Tan
C4T151Y – Yellow
- Respirator-fit hood
- Storm flap over zipper
- Elastic face and wrists
- Attached boots

Sizes: S – 5X
Case Pack: 6

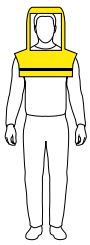
Coverall
C4T165T – Tan
C4T165Y – Yellow
- Attached respirator-fit hood
- Double storm flap
- Hook and loop closure
- Elastic face and wrists
- Attached boots with boot flaps

Sizes: S – 5X
Case Pack: 6



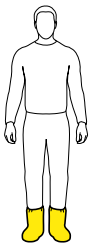
Coverall
C4T166T
- Respirator Fit Hood
- Double Storm Flap with hook and loop closure
- Elastic Wrists and Ankles

Sizes: S – 5X
Case Pack: 6



Hood Short Bib Style
C4T714Y
- 20 mil Vinyl lens

Sizes: One Size
Case Pack: 6



Boot Covers
C4T740YP
- Elastic top

Sizes: One Size
Case Pack: 12 pair

ChemMax® 4 Plus Physical Properties

Property	Test Method	Units	ChemMax® 4 Plus
Basis Weight	ASTM D3776	oz./sq. yd	7.5
Grab Tensile MD	ASTM D5034	pounds	93.4
Grab Tensile XD		pounds	80.3
Trapezoidal Tear MD	ASTM D5733	pounds	24.4
Trapezoidal Tear XD		pounds	18.7
Ball Burst	ASTM D751	pounds	83
Surface Resistance	EN1149	Ω	Pass

ChemMax® 4 Plus Permeation Testing - ASTM F1001

Challenge Chemical	CAS Number	Physical State	ChemMax® 4 Plus
Acetone	67-64-1	Liquid	>480
Acetonitrile	75-05-8	Liquid	>480
Ammonia Gas	7664-41-7	Gas	>480
1,3-Butadiene Gas	106-99-0	Gas	>480
Carbon Disulfide	75-15-0	Liquid	>480
Chlorine Gas	7782-50-5	Gas	>480
Dichloromethane	75-09-2	Liquid	>480
Diethylamine	109-89-7	Liquid	>480
Dimethyl Formamide	68-12-2	Gas	>480
Ethyl Acetate	141-78-6	Liquid	>480
Ethylene Oxide Gas	75-21-8	Gas	>480
n-Hexane	110-54-3	Liquid	>480
Hydrogen Chloride Gas	7647-01-0	Gas	>480
Methanol	67-56-1	Liquid	>480
Methyl Chloride Gas	74-87-3	Gas	>480.
Nitrobenzene	98-95-3	Liquid	>480
Sodium hydroxide, 50%	1310-73-2	Liquid	>480
Sulfuric Acid, 98%	7664-93-9	Liquid	>480
Tetrachloroethylene	127-18-4	Liquid	>480
Tetrahydrofuran	109-99-9	Liquid	>480
Toluene	108-88-3	Liquid	>480

ND = None Detected | > = greater than | L = liquid | G = gas
Numbers reported are averages of samples tested by the ASTM F739 test method. Sample results do vary and therefore averages for these results are reported.

Warnings:
1. ChemMax® 4 Plus is not flame resistant and should not be used around heat, flame sparks, or in potentially flammable or explosive environments.
2. Garments made of ChemMax® 4 Plus should have slip resistant or anti-slip materials on the outer surface of boots, shoe covers or other garment surfaces in conditions where slipping could occur.

Note: *Chemical Resistance Data is in accordance with ASTM F-739 test method. Testing is performed on fabric samples only, not finished garments. Sources for all test data are independent laboratory conditions and not actual use conditions.*

4 PLUS

Powered By PermaSURE®

INTERCEPTOR® PLUS

First Line Defense Against Extreme Chemical Hazards. Now Supported by PermaSURE®

Intercepptor® Plus Applications

HazMat Response

Hazardous Vapor Environments

Ammonia

Heat Sealed Seam

Heat Sealed Plus Seam

Interceptor® Plus is the apex of Lakeland® Industries' chemical protective clothing line. Available in both Level A encapsulating, as well as non-encapsulating configurations, there is an Interceptor® Plus style for your needs be it gas, vapor, aerosol, liquids, harmful contaminants or particulate protection.

This next generation of Interceptor® fabric is now compatible with the PermaSURE® Toxicity Risk Modeller, giving you access to the most comprehensive chemical database in the industry.

PTFE visor process permanently seals the visor into the suit with no sewing involved so that liquids can't penetrate the visor edge

PTFE outer layer on visor prevents impairment of vision due to chemical contact

Attached gloves include non-reversing Silver Shield® inner glove with Butyl outer glove

Available in CE Type 1 certified Level A as well as non-encapsulating configurations

Interceptor® Plus Configurations

INT640B
INT640WB - Wide-View Face Shield

Blue CE Type 1:EN943:2005 Vapor tight (Level A) Deluxe Encapsulating Suit
- Fully encapsulated
- Front-entry
- Storage bag included

Available in wide-view face shield configuration as PS80640W.

Sizes: S – 5X
Case Pack: 1

INT650B
INT650WB - Wide-View Face Shield

Blue CE Type 1:EN943:2005 Vapor tight (Level A) Deluxe Encapsulating Suit
- Fully encapsulated
- Rear-entry
- Storage bag included

Available in wide-view face shield configuration as PS80650W.

Sizes: S – 5X
Case Pack: 1

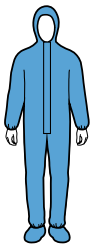
Interceptor Training Suit
INT491B (Rear Entry)
INT497B (Front Entry)

Encapsulated front or rear entry expanded back training suit.
- 20 Mil Vinyl lens
- 48" non separator cloth zipper that zips from bottom to top
- Zipper is reinforced at top and bottom with webbing on the outer side
- Double storm flap
- Exhaust port on back right side of hood
- 1 exhaust port on left back side of body
- Sock boots
- Boot flaps sewn on
- Vinyl gloves sewn on
- Internal belt loops and assembled belt
- No hem on splash guard or dump valve covers.

Training Use Only! Case Pack: 1

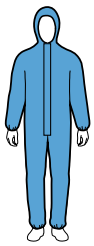
INT620B
- Flat back front entry vapor-protective suit (Level A)
- Sealed seams on outside
- 48" zipper, double storm flap with hook and loop
- 2-layer faceshield(10 mil Teflon/40 mil Vinyl)
- Butyl gloves
- 2 exhaust valves
- Attached sock boots with boot flaps
- 1.5" waist belt with 3 belt loops sewn (inside) and sealed
- Storage bag included

Sizes: S – 5X
Case Pack: 1



Coverall
INT165B
- Attached respirator-fit hood
- Double storm flap
- Hook and loop closure
- Elastic face and wrists
- Attached boots with boot flaps

Sizes: S – 5X
Case Pack: 6



Coverall
INT166B
- Respirator Fit Hood
- Double Storm Flap with hook and loop closure
- Elastic Wrists / Ankles

Sizes: S – 5X
Case Pack: 6

Interceptor® Plus Physical Properties

Physical Property	Test Method	Units	Test Results
Basis Weight	ASTM D3776	oz./sq. yd	11
Grab Tensile MD	ASTM D5034	lbs.	218.5 lbs.
Grab Tensile XD	ASTM D5034	lbs.	170.4 lbs.
Trapezoidal Tear MD	ASTM D5733	lbs.	34.7 lbs.
Trapezoidal Tear CD	ASTM D5733	lbs.	38.7 lbs.
Ball Burst	ASTM D3787	lbs.	250 lbs.

Interceptor® Plus Permeation Testing - ASTM F1001

Chemical Name	Physical Phase	Normalized Breakthrough Time (min.)	CAS No.
Acetone	L	>480	67-64-1
Acetonitrile	L	>480	75-05-8
Ammonia (gas)	G	>480	7664-41-7
1,3- Butadiene	G	>480	106-99-0
Carbon disulfide	L	>480	75-15-0
Chlorine gas	G	>480	7782-50-5
Dichloromethane	L	>480	75-09-2
Diethylamine	L	>480	109-89-7
N,N-Dimethylformamide	L	>480	68-12-2
Ethyl acetate	L	>480	141-78-6
Ethylene oxide	G	>480	75-21-8
n-Hexane	L	>480	110-54-3
Hydrogen chloride	G	>480	7647-01-0
Methanol	L	>480	67-56-1
Methyl chloride	G	>480	74-87-3
Nitrobenzene	L	>480	98-95-3
Sodium hydroxide, 50%	L	>480	1310-73-2
Sulfuric acid (conc.)	L	>480	7664-93-9
Tetrachloroethylene	L	>480	127-18-4
Tetrahydrofuran	L	>480	109-99-9
Toluene	L	>480	108-88-3

> = greater than, L = liquid, G = gas

Note: *Chemical Resistance Data is in accordance with ASTM F-739 test method. Testing is performed on fabric samples only, not finished garments. Sources for all test data are independent laboratory conditions and not actual use conditions.*

PLUS

Powered By PermaSURE®

Chemical Suit Options and Accessories

Lakeland® ChemMax® Push-Lock® Glove System

Quickly Install Or Remove Chemical Gloves On Lakeland® ChemMax® or Interceptor® Plus Suits!

The Lakeland® ChemMax® **Push-Lock® Glove System** is a simple method of attaching most types of chemical gloves to the garment sleeve through the use of two concentric rings. The system has been fully tested to a CE Type 3 Jet Test and is certified for use with all Lakeland® ChemMax® and Interceptor® Plus chemical protective coveralls. Lakeland's Push-Lock® Glove System is reusable and may need decontamination before reuse.

Lakeland® item number JFR2 contains one set of Push-Lock® rings, and will secure one pair of gloves to any Lakeland® chemical protective coverall.

Level A Test Kit

Maintain your encapsulated suits with this easy to use test kit. Kit features an easy-to-read Magnehelic pressure gauge, digital timer, sturdy brass and steel fittings, hoses and connectors in a waterproof case. Complete instructions included.

Part No. PTK10 – Level A Test Kit
Part No. PTK17 – Adapters for DuPont test kit to test Lakeland® suits.
Part No. PTK220 – International Universal test kit. Convertible to 220V and 110V.

Options for Chemical Suits

Part Number	Description
T-LEGBAND	Reflective triple trim 1.5" L/Y around legs
T-ARMBAND	Reflective triple trim 1.5" L/Y around arms
A1	Add 1 side air tube
G5	Seal-tight glove system
G6	North Silvershield® gloves heat sealed to suit
G12	Push-Fit glove system includes 2 inserts and 2 rings
GA	Glove O-ring and clamp assembly
I1	Inspect, retest, and re-certify Level A suit*
I2	Install customer supplied pass-thru
P1	Scott® pass-thru with Hanson® fittings (NFPA approved on ensembles)
P2	Scott® pass-thru with Schrader® fittings (NFPA approved on ensembles)
P3	Standard pass-thru (not NIOSH approved)
P4	Survivair® pass-thru with Hanson® fittings (NFPA approved on ensembles)
P5	Survivair® pass-thru with Schrader® fittings (NFPA approved on ensembles)
P6	Draegar pass-thru with Hanson® fittings (NFPA approved on ensembles)
P7	Draegar pass-thru with Foster® fittings (NFPA approved on ensembles)

**Recertification of Level A Suits - Suits must NEVER have been used in an incident, for training, or exposed to ANY contaminants. Contact Customer Service prior to return for authorization at 1-800-645-9291.*

Accessories for Interceptor Plus Level A Suits

Part Number	Description	Part Number	Description
RM00389	Vinyl glove ring	V14	Exhaust valve
RM00391	Vinyl glove insert	PTK17	Adapter for DuPont test kit to pressure test Lakeland® Level A suits
RM00372	25 mil Butyl gloves	BG750	Level A storage bag
RM00375	17 mil Butyl Glove	BG760	Lakeland® Utility Bag (Small)
RM00376	North Silvershield gloves	CV55	Lakeland® Phase-Change Cooling Vest includes phase change inserts (One Size) Poly Cotton Outershell
JFR2	Push-Fit glove system includes 2 inserts and 2 rings	CV56	Lakeland® Phase-Change Cooling Vest includes phase change inserts (One Size) Banox Outershell
45P	Onguard EZ Fit Hazmax® Boots Sized S-XL (NFPA Certified)	CV58	Lakeland® Phase-Change Cooling Vest includes phase change inserts (One Size) Nomex® Outershell
46P	Tingley® Hazmat Boots Sized 7-13 (NFPA Certified)	CV57	Lakeland® Phase change inserts - set of 4 replacement packs
PTK10	Test kit for Level A suit		
PTK220	Universal Pressure test kit with blower (will test Lakeland®, Du-Pont & Kappler Level A suits)		

TRAINING SUITS

ChemMax® 1Encapsulated Training Suit C55450RE
ChemMax® 1 Encapsulated Training Suit, back entry, expanded back, Mylar® lens, bound seams. **Training Use Only!**
Case Pack: 6

TRAINING SUITS

Encapsulated Nylon Training Suit
95494 (Rear Entry)
95493 (Front Entry)
Encapsulated Nylon Training Suit, expanded back, sewn seams, 20 mil Vinyl faceshield, single storm flap, butyl gloves, 2 exhaust ports, attached sock boots.
Training Use Only! Case Pack: 1

Phase Change Cool Vest

Wear a Cool Vest underneath a chemical protective suit and stay cool!

CV55

CV56

CV58

CV57 Replacement Inserts

Get Comfortable with a Phase Change Cool Vest® from Lakeland® Industries

Working in HazMat/Protective suits can make anyone lose their cool. The Phase Change Cool Vests® worn under these suits give the user increased comfort. In fact, it creates a climate of 58° F. /14° C for up to three hours (depending on work environment).

How Do They Work?

These vests create a cooling energy from a unique Phase Change Material that is mechanically sealed in durable inserts. After freezing the inserts in ice water or a refrigerator for just 30 minutes, the vests deliver the constant cool temperature.

Unlike frozen water or gel products, our Phase Change Material maintains a consistent temperature of 58° F. /14° C during its transition from a solid to a liquid. This ensures that the wearer receives a constant cooling temperature throughout the entire two to three-hour period.

Safe and Effective

At Lakeland® Industries, we are very concerned about the materials we use in our products. Our Phase Change Material is made of a proprietary blend of alkanes with unique thermal properties. The inserts are non-toxic and non-flammable and can be used over and over again. To achieve continuous cooling, additional insert sets are available so the user can rotate each set.

Comfort is Key

Designed for comfort, these vests are washable and lightweight. The built-in side and shoulder adjustments provide a better fit. To suit a variety of users, the vests come in many styles, sizes and fabrics, including polycotton and Nomex®.

If you want a safe and effective way to keep your workers cool, get the Phase Change Cool Vest®, available at Lakeland®.

Style CV55 – Polycotton Cool Vest® with Phase Change inserts. **Case Pack**: 1
Style CV58 – Nomex® Cool Vest® with Phase Change inserts. **Case Pack**: 1
Style CV56 – Banox (FR Cotton) with Phase Change inserts. **Case Pack**: 1
Style CV57 – Set of 4 Cool Vest replacement inserts. **Case Pack**: 1


FR/AR Clothing


Heat Protective Apparel

Fire Fighter Turnout Gear


Dual Certified Gear

Your First Line of Defense in Protective Apparel

Lakeland®
Protect Your People®

In Canada
Toll Free: 800-489-9131
Voice: 519-757-0700
Fax: 519-757-0799
Email: sales-canada@lakeland.com


FR/AR Hi-Visibility


Hand and Arm Protection


Wildland Gear


FR/AR Rainwear